NOTES
ON
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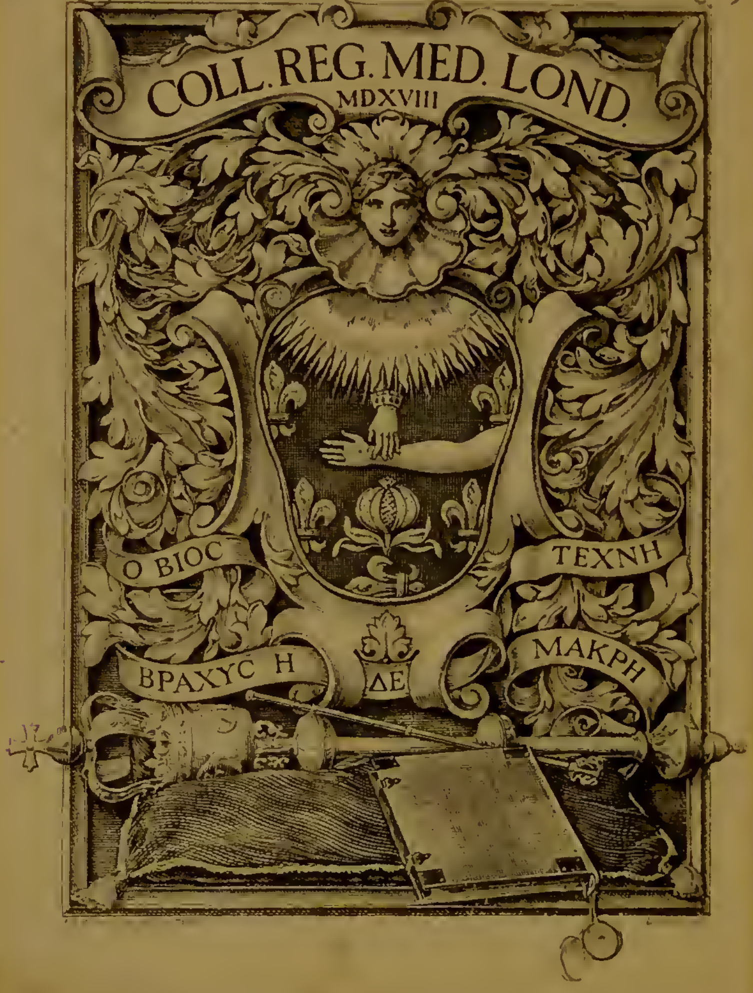

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NOTES

ON

CHINESE MATERIA MEDICA.

BY

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PREFACE.

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As originally published, the following *Notes on Chinese Materia Medica* are scattered through the pages of two volumes of the '*Pharmaceutical Journal,*' and therefore not conveniently accessible for reference. In the present pamphlet they are collected, paged continuously, and supplied with a title-page and index.

D. H.

Plough Court, Lombard Street,
February, 1862.

[*From the* Pharmaceutical Journal *for* July *and* August, 1860.]

NOTES ON CHINESE MATERIA MEDICA.

BY DANIEL HANBURY, F.L.S.

To draw up a general description of Chinese Materia Medica is a task that in the present state of our knowledge of the natural history of China, it were almost vain to attempt. Opportunities for scientific investigations in that vast country have as yet been far too limited, its zoology, botany, and mineralogy too little explored to enable any one to describe other than in a very imperfect manner even a small number of the varied products derived from the animal, vegetable, and mineral kingdoms, which come under the general denomination of *drugs.* But although sources of information are scanty, they are not entirely wanting; and I have, consequently, been led to think that under the simple title of *Notes*, it might be both useful and interesting to place upon the pages of a scientific journal such remarks upon Chinese Materia Medica as have been suggested by the examination of a considerable number of specimens which I have received through the kindness of friends in China. That, therefore, which I propose to do in the following pages is to give a short descriptive catalogue, firstly, of some of the mineral substances employed in Chinese medicine, which I have had the opportunity of examining, and of most of which I possess specimens; and, secondly, of a small number of animal and vegetable products, which may, from their origin, uses, or affinities, be of interest to the pharmacologist. The imperfectness of the information I have collected will, I trust, induce further researches on the part of those who being residents in China have opportunities which I cannot command, but with whose labours I shall always be glad to co-operate.

Before commencing the task proposed, it is desirable briefly to review some sources of information upon Chinese Materia Medica, to which frequent reference will have to be made.

Of a considerable number of native works, the most important and well-known is, undoubtedly, the great herbal entitled *Pun-tsaou-kang-mŭh*,* written by Le-she-chin, in the middle of the sixteenth century. It was commenced in the reign and by command of the Emperor Kea-tsing, and completed by the son of the author in the reign of Wan-leih, to whom it was presented in the year 1596. For some centuries previous to this period, works of the same character had appeared at intervals, some of them published by authority of the government, and others by private individuals. Of a few of these works, Du Halde has preserved slight notices, to which I would refer the reader who is desirous of further information.* According to this author, the Pun-tsaou of Le-she-chin was written with the design of obviating the difficulties and confusion arising from a multitude of authorities, by supplying in one work a compendium of all that was more valuable in its predecessors. This design it probably fulfils, as it is held in high estimation by the Chinese and is frequently reprinted; but, excepting a revision and enlargement which it underwent in the fourteenth year of the Emperor Shun-chi, A.D. 1657, no attempt appears to have been made for the verification of old, or the acquisition of new, information. The Pun-tsaou is divided into 52 chapters, usually bound into about 40 thin octavo volumes, the first three of which contain woodcuts of many of the minerals, plants, and animals referred to in the text. These woodcuts, four of which occur on a page, amount in number to more than 1100: the name is placed above each, and sometimes a synonym at the side. No general translation of the Pun-tsaou into any European language has been published, though small portions of the work to illustrate particular subjects have frequently been translated. These extracts show that among much that is interesting, there is a large admixture of the absurd and fabulous, so that it is questionable whether the labour of translating so voluminous a work in its integrity would be repaid by the value of the information acquired. It is much to be desired, however, that a list of the woodcuts should be drawn up and printed, together with the Latin names of such minerals, plants, or animals as can be identified: such a list would form a convenient key to the Pun-tsaou, and although but a comparatively small number of the names might at first be determined, a basis would be laid for future labours.

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* Like other Chinese names, it is written by Europeans in various manners, as, *Pen thsao kang mo*, *Pen tsao cang mou*, &c.

To give some idea of the subjects treated in the Pun-tsaou, and the manner in which they are arranged, I have drawn up the synoptical table of its contents printed on the opposite page, which Professor Stanislas Julien of Paris has favoured me by examining and correcting.†

With regard to European works touching upon Chinese Materia Medica, the first to be mentioned is one entitled *Specimen Medicinæ Sinicæ*, published in 4to, at Frankfort, in 1682. This work, which was edited by Andrew Cleyer, a physician and botanist in the service of the Dutch East India Company, is a collection of Latin treatises, some of them being translations from the Chinese. A list of these treatises (not, however, agreeing with the titles of the treatises themselves) is placed on the title-page. The author or translator of most, if not of all, of these works, was not Cleyer, but Michael Boym, a Polish Jesuit missionary, who went to China and India in 1643. After Boym's death in 1656, his MSS. were sent to Europe, where those constituting the work in question were published in 1682. Owing, however, to disagreements between the Dutch East India Company and the Jesuit missionaries, the name of Boym was suppressed, and the work appeared as edited by Dr. Cleyer, first physician to the

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* *Description de l'Empire de la Chine*, Paris, 1735, fol. Tome iii., p. 441.

† I may also here acknowledge the information I have derived from Du Halde (*Op. cit.* iii., 437-9), as well as from Mr. S. Wells Williams, in the comprehensive account of the Pun-tsaou given in his *Middle Kingdom*, vol. i., chap. vi. I have also to thank my friends Messrs. Lockhart and W. G. Stronach, who have kindly determined for me many points involving a knowledge of the Chinese language.

SYNOPSIS OF THE CONTENTS OF THE CHINESE HERBAL

本草綱目 *PUN-TSAOU-KANG-MŬH.*

Chap.				
1. 2.	Introductory Observations upon the practice of Medicine and Index of Receipts.			
3. 4.	Lists of Medicines for the cure of all Diseases.			
5. 6. 7.	Waters, Fires and Earths.			
8.	MINERAL ......Metals			Fig. 1— 10*
..	Gems			11— 22
9.	I. Stones			23— 43
10.	II. Stones			44— 71
11.	Saline Stones [as Common Salt, Alum, Borax, Sulphur, &c.]			72— 87
12 13	VEGETABLE ...1st Division, HERBS	§ 1.	Hill Plants	88— 154
14.		2.	Odoriferous Plants	155— 207
15. 16.		3.	Plants which grow in damp places	208— 333
17.		4.	Poisonous Plants	334— 378
18.		5.	Creeping and Climbing Plants	379— 452
19.		6.	Aquatic Plants	453— 471
20.		7.	Rock Plants	472— 490
21.		8.	Mosses and Lichens	491— 502
		9.	Miscellaneous Plants, and Plants having names, but not yet used in Medicine	503— 525
22.	———— 2nd Division, GRAINS	§ 1.	Hemp, Wheat, Rice, &c.	526— 535
23.		2.	Millet, Maize, &c.	536— 544
24.		3.	Leguminous Plants	545— 552
25.		4.	Alimentary Preparations [of a vegetable nature, and used in medicine, as boiled rice, yeast, soy, vinegar, wine, &c.]	
26.	———— 3rd Division, CULINARY HERBS,	§ 1.	Plants having a strong odour and pungent taste [as garlick, mustard, ginger, &c.]	553— 576
27.		2.	Soft and smooth plants [potherbs, as lettuce, chicory, mallow, &c.].	577— 606
28.		3.	Plants producing fruit upon the ground [as the gourd tribe]	607— 615
		4.	Aquatic Vegetables [as edible seaweeds]	616— 620
		5.	Fungi	621— 626
29.	———— 4th Division, FRUITS	§ 1.	Cultivated Fruits	627— 635
30.		2.	Hill Fruits	636— 664
31.		3.	Foreign Fruits	665— 684
32.		4.	Aromatic Fruits	685— 696
33.		5.	Fruits which grow on the ground, and have no kernels [as melons]	697— 702
		6.	Aquatic Fruits	703— 707
34.	———— 5th Division, TREES	§ 1.	Aromatic Trees	708— 732
35.		2.	Stately Trees	733— 777
36.		3.	Bushy Trees	778— 821
37.		4.	Parasitic Plants	822— 826
		5.	Flexible Plants and Trees [as osier, bamboo, &c.]	827— 829
		6.	Miscellaneous Trees	
38.	On Garments and Domestic Utensils [appertaining to medicine.]			
39. 40.	ANIMAL ....1st Division, INSECTS	§ 1. 2.	Insects born from eggs	830— 859
41.		3.	Insects produced by metamorphosis	860— 874
42.		4.	Aquatic Insects [including frogs]	875— 886
43.	———— 2nd Division, SCALY ANIMALS	§ 1.	Dragons	887— 893
		2.	Serpents	894— 902
44.		3.	Fishes having scales	903— 932
		4.	———— no scales	933— 953
45.	———— 3rd Division, SHELLY ANIMALS,	§ 1.	Tortoises	954— 962
46.		2.	Mollusks	963— 985
47.	———— 4th Division, BIRDS	§ 1.	Aquatic Birds	986—1007
48.		2.	Birds living upon open lands	1008—1026
49.		3.	———— in woods	1027—1042
		4.	Mountain Birds	1043—1052
50.	———— 5th Division, HAIRY ANIMALS...	§ 1.	Domestic Quadrupeds	1053—1064
51.		2.	Wild Animals	1065—1094
		3.	Rodent Animals	1095—1104
		4.	Monkeys	1105—1110
52.	———— 6th Division, MAN [parts of the human body and human secretions and excretions employed in medicine.]			

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* This series of numbers does not exist in the original. When added in MS. it affords a convenient and ready means of reference to any particular figure.

Company. The treatises comprised in the *Specimen Medicinæ Sinicæ*, relate chiefly to medical subjects, and especially to the Chinese doctrine of the pulse. One section, however, of 30 pages, attributed to Boym, is entitled, *Medicamenta simplicia quæ a Chinensibus ad usum medicum adhibentur*. It is an unclassified catalogue of 289 drugs, giving of each the Chinese name written after the Portuguese orthography, but without the Chinese characters; to this succeeds a brief description, chiefly as regards medicinal properties, which are expressed according to Chinese ideas. Occasionally the author is able to add the European name.

Incomparably more important and useful than Cleyer's *Specimen* is a little work published at St. Petersburg in 1856, for a copy of which I am indebted to the kindness of Professor Horaninow. It is entitled *Catalogus Medicamentorum Sinensium quæ Pekini comparanda et determinanda curavit Alexander Tatarinov, Doctor Medicinæ, Medicus Missionis Rossicæ Pekinensis spatio annorum* 1840—1850. (Petropoli, 1856. 8vo.) It is, as its title implies, the catalogue of a collection of Chinese drugs obtained in Pekin by Dr. Tatarinov, physician to the Russian mission in that capital, which drugs, as we learn from the preface, were subsequently examined and for the most part determined by Dr. Paul Horaninow, professor of Materia Medica at St. Petersburg. With the exception of the title-page and preface, which are in type, the catalogue is in lithograph, and forms a thin octavo of 65 pages. The Chinese characters for each name are given, and their sound expressed both in Russian and English writing characters. The arrangement is alphabetical, according to the names written after the Russian orthography. The name of each drug, so far as it could be determined, is given in Latin without note or comment. The catalogue includes the names of 500 substances.

Although these two are the only European works with which I am acquainted, that professedly treat of Chinese Materia Medica, there are some other valuable sources of information, which are too well known to require more than the briefest notice; such are the *Flora Cochinchinensis* of Loureiro, a work in which the medicinal properties of many plants of Southern China are briefly noticed. The *Amœnitates* of the German botanist Kæmpfer, published in 1712, contains an important section of 145 pages upon Japanese plants, for many of which the Chinese characters with their Japanese sounds are given. Nor should I omit to mention an Index of Plants of Japan and China, published in 1852 by MM. Hoffmann and Schultes,* in which the Latin names of about 600 species are enumerated, together with their equivalents in Japanese and Chinese, the Chinese characters being given.

With regard to inorganic Materia Medica, some information as to the Chinese designations of various mineral substances may be gathered from Keferstein's *Mineralogia Polyglotta* (Halle, 1849, 8vo, pp. 248); the Chinese words, however, are expressed only in Roman characters.

The mineral Materia Medica of the Chinese is such as one may expect to find among a people having no scientific acquaintance with chemistry. Numerous substances are employed which are devoid of all active medicinal properties, while others of great power are so administered that the dose must be extremely uncertain. Although most of their mineral drugs are used in the crude state, there are a few, such as the mercurials, which are the results of chemical operations that are evidently conducted with considerable skill.

In the following list I have thought it best to group the substances described under the simple headings of *Calcareous*, *Magnesian*, *Arsenical*, &c., instead of attempting any more scientific arrangement.

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* *Journal Asiatique*, Oct., Nov., 1852.

SULPHUR.

倭硫黃 *Wei-lew-hwang;* Native Sulphur.—Kæmpfer states that it is found abundantly in Japan.

硫黃 *Lew-hwang;* Sulphur.—Cleyer, *Med. simpl.*, No. 157; *Pun-tsaou*, fig. 85. The specimen has been fused and partially crystallized; it has a greyish-yellow colour.

SILICA.

白石英 *Pĭh-shĭh-ying;* Massive Quartz.—*Pun-tsaou*, fig. 20.

ALKALINE SALTS.

硝 *Seaou;* Nitrate of Potash.—The Chinese distinguish several varieties, as *Pŏ-seaou*, *Wang-seaou*, *Ma-ya-seaou*, &c.

鹼 *Këen;* Native Carbonate of Soda.—Dr. T. Martius has described this substance, a quantity of which was imported into Hamburg in 1845. It is said to be found on the Thibetan frontiers of China.*

硼砂 *Păng-sha;* Borax; Biborate of Soda.—An excellent sample of refined borax: probably imported in a crude state into China from Thibet, where, as is well known, it occurs in certain lakes. Borax is extensively used in China by silversmiths and coppersmiths.

元明粉 *Yuen-ming-fun;* Sulphate of Soda.—It is in crystals, and obtained in all the northern and central provinces of China. M. Rehmann enumerates it in his catalogue of Thibetan medicines.†

碯砂 *Naou-sha;* Chloride of Sodium (a peculiar form).—The specimen which I have received under the above Chinese name is a small rounded fragment of a crystalline substance, of a greyish-green hue, which upon analysis proves to be nothing more than *chloride of sodium* contaminated with a little earthy matter. Such, however, it cannot be regarded by the Chinese, who from some fanciful idea, possibly derived from the locality whence it is obtained, imagine it possessed of great medicinal virtues, and pay for it at the extraordinary rate of 20 dollars (£5) the ounce.

Naou-sha is stated by Keferstein to be a name for carbonate of ammonia and sal-ammoniac, but I have received neither of these substances from China.

CALCAREOUS SUBSTANCES.

寒水石 *Han-shuy-shĭh;* Calcareous Spar (Carbonate of Lime); *Hân xiù xĕ*, Cleyer, *Med. simpl.*, No. 160.—It consists of fragments of colourless crystals.

光粉 *Kwang-fun;* Levigated White Marble (Carbonate of Lime).—This substance is sold in the form of cakes, each weighing from two to three ounces, and enclosed in a little box. It is a remarkably pure form of carbonate of lime, and a very good specimen of careful levigation.

鐘乳石 *Chung-joo-shĭh;* Carbonate of Lime in stalactitic masses.—*Pun-tsaou*, fig. 37. It is obtained from caves. The Chinese name signifies *Hanging-* (like a bell) *milk-stone.*

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* *Pharm. Journ. and Trans.*, vol. vi., p. 182.

† *Bulletin de Pharm.*, t. iii., p. 392.

花 蕊 石 *Hwa-luy-shĭh;* a granular greenish-white Dolomite (Carbonate of Lime and Magnesia).

玄 精 石 *Heuen-tsing-shĭh;* Selenite (Sulphate of Lime).—*Pun-tsaou*, fig. 80. Small lenticular crystals. (sometimes twin-crystals), translucent, but having a dull exterior. They vary in diameter from $\frac{1}{10}$ to $\frac{2}{10}$ of an inch.

石 膏 *Shĭh-kaou;* Fibrous Gypsum (Sulphate of Lime).—*Xĕ cāo*, Cleyer, *Med. simpl.*, No. 166; *Pun-tsaou*, fig. 27.

紫 石 英 *Tsze-shĭh-ying;* Fluor Spar (Fluoride of Calcium).—*Pun-tsaou*, fig. 21. In fragments of irregular size, and of a purple or greenish colour.

陽 起 石 *Yang-khe-shĭh;* Asbestous Tremolite; Silicate of Lime and Magnesia. *Pun-tsaou*, fig. 44.—Irregular masses of a pale greenish colour.

MAGNESIAN AND ALUMINOUS SUBSTANCES.

銀 精 石 *Yin-tsing-shĭh;* Silvery-white Mica.—*Pun-tsaou*, fig. 54. I have also received a transparent green mica under the same name.

金 精 石 *Kin-tsing-shĭh;* Brown Mica.—*Pun-tsaou*, fig. 54.

青 蒙 石 *Tsing-mung-shĭh.*—*Pun-tsaou*, fig. 56.

金 蒙 石 *Kin-mung-shĭh; Cim̄ mûm xĕ*, Cleyer, *Med. simpl.*, No. 154.

銀 蒙 石 *Yin-mung-shĭh.*—This substance, and the two preceding, are micaceous earths.

塊 活 石 *Kwei-hwŏ-shĭh;* Steatite or Soapstone; Silicate of Magnesia. —*Hwă-shĭh, Pun-tsaou*, fig. 31. A friable, greyish-white variety:—the so-called *Soapstone*, from which the Chinese often carve beautiful ornaments, is a silicate of alumina, known to mineralogists as *Agalmatolite.*

紅 砂 *Hung-sha.*—This substance is in the form of coarse reddish-brown sand, which, when examined with a lens, is seen to consist of transparent angular fragments, mostly of a pale pinkish hue, mixed with some of a yellowish-brown, or more rarely greenish-black. Sp. gr. 3.848. Professor Guibourt considers it is probably some variety of garnet reduced to powder, and in the absence of positive information I have therefore placed it among the aluminous substances.

飛 活 石 *Fei-hwŏ-shĭh.*—An argillaceous earth, of a pale yellowish colour, soft to the touch, and formed into little, rectangular, oblong blocks.

赤 石 脂 *Chĭh-shĭh-che.*—An aluminous earth, of a pale pinkish colour, or white, in soft, friable, irregular masses. It has been examined by Mr. J. Morland, jun., whose analysis shows its composition to be nearly that of Kaolin. The two are as follows:—

	Chĭh-shĭh-che.	*Pure Kaolin.*
Silica	42.93	46.5
Alumina	36.53	39.6
Oxides of Iron and Manganese (mostly Manganese)	4.85	—
Magnesia and Lime	.94	—
Water	14.75	13.9
	100.0	100.0

The *Chĭh-shĭh-che* contains also a trace of fluorine, which was calculated with the oxides of iron and manganese.

白 礬 *Pĭh-fan;* Alum.—*Pun-tsaou,* fig. 86.

ARSENICAL SUBSTANCES.

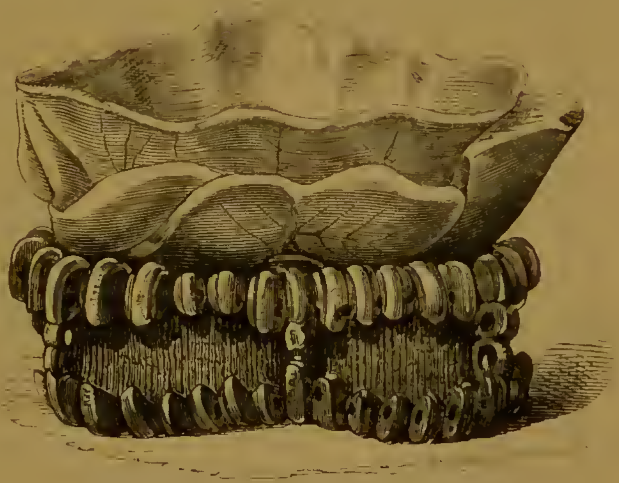
信 石 *Sin-shĭh;* Arsenious acid, also called *Pĭh-sin* and *Hung-pe.*—Of the specimens which I have received, some are apparently a natural mineral, constituting a translucent, crystalline mass, varying in colour from pure white to a yellowish-brown or grey. Other specimens have the aspect of the ordinary massive white arsenic of European commerce.

雌 黃 *Tsze-hwang;* Yellow Sulphuret of Arsenic; Native Orpiment; *Pun-tsaou,* fig. 26.—It occurs in the province of Yunnan; probably also in Burmah, as it has been shipped in considerable quantity from Moulmein. Ainslie states that it is exported from China to India.*

Orpiment is resorted to by the Chinese in cases of ague, but compounded in a manner so absurd as to render the dose extremely uncertain or even a non-entity.

雄 黃 *Heung-hwang;* Native Red Sulphuret of Arsenic; Realgar; *Hiûm hoâm,* Cleyer, *Med. simp.,* No. 176.—It is found in the province of Yunnan, in the south of China, and has been exported in small quantity to London from Canton. Realgar is also sometimes imported into England from Bombay.

Small shallow cups, elegantly carved out of this mineral, and often highly polished, are used by the Chinese for administering certain medicines; by which means, when the inner surface of the cup is, as sometimes happens, in a somewhat disintegrated condition, it is evident that a minute dose of arsenic may be administered. One of these cups, with its fanciful wooden stand, is represented in the annexed woodcut. Other carvings, but of a purely ornamental nature, are also manufactured from realgar by the Chinese, and, from their magnificent red colour and fine polish, are often of considerable beauty.



Realgar Medicine-Cup on Carved Wooden Stand.

紅 信 *Hung-sin;* Red Sulphuret of Arsenic with Arsenious Acid.—A native mineral, constituting a highly crystalline, striated mass, of a red or pinkish colour, mottled with white,—passing in places into a steel grey. It is composed of Red Sulphuret of Arsenic with a large proportion of Arsenious Acid. The dark parts are probably due to metallic arsenic.

COMPOUNDS OF ZINC, LEAD, AND COPPER.

浮 甘 石 *Fow-kan-shĭh,* also called *Loo-kan-shĭh;* Zinc Bloom. Dana, *Syst. of Mineralogy,* Ed. 4, vol. ii., p. 460.—An opaque white mineral, easily broken and marking the fingers like chalk. It consists chiefly of fragments of a botryoidal crust, showing, when broken, a glistening, fibrous, radiating structure, sometimes divided into bands or layers slightly stained with oxide of iron. Mr. J. D. Perrins, of Worcester, who has obligingly examined the mineral for me, found its specific gravity (taken with precautions to deprive it of the air in its pores) to be 2.67. Mr. Perrins's analysis gave its composition as follows:—

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* *Mat. Med. of Hindoostan,* p. 53.

Oxide of Zinc	72.64
Carbonic Acid	14.95
Water	10.63
Carbonate of Lead	1.78
	100.00

From these results, which closely approximate to those obtained by Smithson from the analysis of a similar mineral from Bleiberg, in Carinthia,* the following formula may be deduced:—$Zn\,O, C\,O_2 + 2\,(Zn\,O, HO)$, with an admixture of $Pb\,O, C\,O_2$. Zinc Bloom, according to Dana, occurs with ores of zinc and lead at Bleiberg and Raibel in Carinthia, where it has probably resulted from the decomposition of calamine.

The Chinese mineral is from the southern province of Kwang-si. As found in the native drug-shops, it occurs chiefly in pieces of from one-quarter to one inch in length. Larger pieces, which are perfectly white, are worth 400 *cash* the tael, which equals about one shilling per ounce.

密 陀 僧 *Meĭh-to-sang;* Litharge (Oxide of Lead).—*Pun-tsaou*, fig. 8; Cleyer, *Med. simpl.*, No. 168.

韋 丹 *Wei-tan;* Red Oxide of Lead; Red Lead.

東 丹 *Tung-tan;* a dull red powder, consisting chiefly of Red Lead and Carbonate of Lime.

鉛 粉 *Yuen-fun;* Carbonate of Lead; White Lead. Prepared at Canton and Soo-chow. A compound plaster, of which carbonate of lead and oil are the chief ingredients, is used by the Chinese.

銅 緑 *Tung-lŭh;* Carbonate of Copper (*artificial*).—It occurs in the form of small rectangular cakes of a pale, green colour, opaque and friable.

FERRUGINOUS SUBSTANCES.

鹽 生 *Yen-săng;* Magnetic Oxide of Iron.—A coarse, black, sand-like powder, strongly attracted by the magnet.

靈 磁 石 *Lin-tsze-shĭh;* Magnetic Iron Ore.—*Pun-tsaou*, fig. 45.

自 然 銅 *Tsze-jen-tung;* Per-oxide of Iron in cubic masses more or less broken.—It appears to have been obtained by calcining iron pyrites. *Pun-tsaou*, fig. 5.

代 赭 石 *Tae-choo-shĭh;* Red Hæmatite; Per-oxide of Iron. *Pun-tsaou*, fig. 46. It has the form of botryoidal concretions, with a scaly fracture, and ferruginous, metallic appearance.

禹 粮 石 *Yu-leang-shĭh;* Brown Clay Iron Ore.—Nodular concretions resembling the *Lapis Ætites* of old European Pharmacy, a mineral which, to use the words of Geiger, "*olim dementer ad partum promovendum adhibebatur.*"

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* Chemical Analysis of some Calamines, by James Smithson, Esq., F.R.S.—*Nicholson's Journal*, vol. vi. (1803), p. 74.

無名異 *Woo-ming-e;* Hydrous Peroxide of Iron in rounded grains; Limonite.—*Pun-tsaou*, fig. 34. This substance consists of rounded grains, varying in size between coarse sand and mustard-seeds, with occasional grains still larger. Some of them have a dark, polished surface, and metallic appearance, but the majority are brown in colour, and are more or less dull, when pulverized their colour is ferruginous. They are not attracted by the magnet. An analysis by my friend Mr. J. Morland, Jun., shows them to have the following composition:—

Peroxide of Iron	63.47
Sesquioxide of Manganese	3.55
Silica	15.55
Alumina..................................	4.98
Do, with trace of Phosphates......	1.12
Water....................................	11.07
	99.74

Dr. Ure mentions a pisiform variety of Brown Clay Iron Ore in small solid spherical grains, which is used in Dalmatia as shot. The Chinese mineral is found in the provinces of Szechuen and Kwangtung.

蛇含石 *Shay-han-shih;* Nodular Iron Pyrites, more or less passed into the condition of per-oxide.

胆礬 *Tan-fan;* Green Sulphate of Iron; Cleyer, *Med. simpl.*, No. 164.

緑礬 *Lŭh-fan;* Green Sulphate of Iron.—*Pun-tsaou*, fig. 87. It is in the state of coarse powder.

MERCURIAL COMPOUNDS.

水銀 *Shŭy-yin;* Mercury.—*Pun-tsaou*, fig. 24.

紅升葯 *Hung-shing-yŏ;* Nitric Oxide of Mercury; Red Precipitate.—A heavy powder, of an orange-red colour, leaving no appreciable residue upon being heated to redness. It contains a little nitrate of mercury, but no arsenic.

輕粉 *King-fun;* Chloride of Mercury; Calomel.—My specimen of the substance called *King-fun*, consists of small, brilliant, colourless, transparent crystals, mostly thin and plate-like, or even pectinated; some are needle-shaped. Chemical examination proves it to consist of two distinct substances, namely, Chloride of Mercury and Sulphate of Lime. The chloride is in a state of great purity and beautifully white. The sulphate of lime is in minute, transparent, acicular crystals, to the naked eye perfectly simulating the chloride of mercury, which it is ingeniously used to adulterate. The proportion in which the two salts exist, is not readily determined, as it is impossible to obtain a uniform mixture for experiment without powdering the entire specimen. From three experiments however, it appears that sulphate of lime constitutes at least a fourth part of the specimen of Chinese Calomel under notice.

King-fun is mentioned by Cleyer as *E kim̄ fueǹ*, and supposed by him to be a natural production, a suggestion quite inadmissible as regards my specimen. Mr. Lockhart informs me it is brought from the province of Gan-hwuy, but of the locality where it is manufactured, and of the process, I am quite ignorant. The Mongols are said to purchase *Sublimate* of the Russians:*—perhaps by this we may understand *Calomel* also. The Chinese appear to have a correct notion of the use of calomel as a purgative, and they also employ it in the form of ointment in cases of ulcer, to cleanse and produce a free purulent discharge.

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* *Bull. de Pharm.* iii.,, p. 387.

硃砂 *Choo-sha;* 丹砂 *Tan-sha;* Cinnabar; Red Sulphuret of Mercury.—*Pun-tsaou*, fig. 23; Cleyer, *Med. simpl.*, No. 177. This mineral has been regarded by the Chinese as the *Philosopher's Stone*, and most extravagant ideas have been entertained respecting it. The Rev. J. Edkins in a communication recently laid before the China Branch of the Royal Asiatic Society* has pointed out that alchemy was pursued in China long previous to its being known in Europe,—in fact, that for two centuries prior to the Christian era, and for four or more subsequent, the transmutation of the base metals into gold, and the composition of an elixir of immortality, were questions ardently studied by the Chinese. It is moreover a matter of history that intercourse between China and Persia was frequent both before and after the Mahommedan conquest of the latter country; that embassies from Persia, as well as from the Arabs, and even from the Greeks in Constantinople, visited the court of the Chinese emperor in Shansi; that Arab traders settled in China, and that there was frequent intercourse by sea, between China and the Persian Gulf; that China had an extensive alchemical literature anterior to the period when alchemy was studied in the West. All these facts go to prove that that pseudo-science originated not with the disciples of Mahommed, but that it was borrowed by them from the Chinese.

With regard to the Philosopher's Stone, it is remarkable that while the alchemists of the West have spoken with doubt as to what it was, with the Chinese its identity appears hardly to have been questioned. That wonderful body which, when used as a chemical agent, was supposed to have the power of converting other metals into gold, and, when employed as a medicine, of conferring immunity from death, is, according to the writings of the Chinese alchemists, *Cinnabar*.

Ko-hung, author of the *Pau p'uh tsi p'ian,* a work of the fourth century of undoubted genuineness, enumerates various mineral and vegetable productions possessing in different degrees the properties of an *Elixir Vitæ*. Of the first of them, Cinnabar, he writes in terms thus translated by Mr. Edkins :—

> When vegetable matter is burnt, it is destroyed, but when the *Tan sha*, [Cinnabar] is subjected to heat, it produces mercury. After passing through other changes, it returns to its original form. It differs widely, therefore, from vegetable substances, and hence it has the power of making men live for ever, and raising them to the rank of the genii. He who knows this doctrine, is he not far above common men? In the world there are few that know it, and many that cavil at it. Many do not even know that mercury comes out of cinnabar. When told, they still refuse to believe it, saying that cinnabar is *red*, and how can it produce a *white* substance? They say also that cinnabar is a stone,—that stones when heated turn to ashes, and how then can anything else be expected of cinnabar? They cannot even reach this simple truth, much less can it be said of them, that they have been instructed in the doctrine of the genii. * * * * * * * * *

The specimens of cinnabar which I have received are in small crystalline fragments and very pure. According to Kæmpfer,† both native and artificial cinnabar are exported from China to Japan, the artificial being used by the Japanese as a colour, and the native been employed in medicine. The same author tells us that in his time, the buying and selling of cinnabar was a monopoly of certain merchants, in virtue of letters patent granted by the emperor.

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* *Transactions of the China Branch of the Royal Asiatic Society* (Hong Kong), Part 5, 1855, art. iv.

† *Hist. of Japan*, Lond., 1727. Vol. i., p. 113.

銀硃 *Yin-choo;* Vermilion; Levigated Red Sulphuret of Mercury.—The process for preparing vermilion is described by an old Chinese author to be as follows:—1 lb. of mercury and 2 lbs. of sulphur are triturated together until they form a blackish powder, which is put into a crucible, closely covered with an iron lid and luted down. The heat of a wood fire is then applied, the lid being kept cool by something wet. The sublimation is thus effected, 1 lb. of mercury usually producing 14 ozs. of cinnabar of the first quality, and 3½ ozs. of the second. In the Library of the India House (London) is a series of beautiful native drawings representing the preparation of vermilion by the Chinese.

Chinese vermilion is an article of regular importation into London, where the finer qualities realize from 3*s*. 3*d*. to 3*s*. 6*d*. per lb.

黄升藥 *Hwang-shing-yŏ;* Nitrate of Mercury with some Peroxide.—A pale buff powder, wholly volatile.

[*From the* Pharmaceutical Journal *for* May, July, *and* October, 1861.]

(*With some alterations.*)

NOTES ON CHINESE MATERIA MEDICA.

BY DANIEL HANBURY, F.L.S.

FRUITS AND SEEDS.

花椒 *Hwa-tseaou;* Fruits of *Zanthoxylum (Rutaceæ,* tribe *Zanthoxyleæ)*; *Hoa-tsiao,* Guibourt, *Hist. des drog.*, T. iij., p. 514.—*Japanese Pepper*, Stenhouse, *Phil. Mag.*, 4 series, vol. vii. (1854), p. 23; *Pharm. Journ. and Trans.*, vol. xvii., p. 19; *Pun-tsaou*, fig. 685.

Hwa-tseaou is a name applied to the fruits of two species of *Zanthoxylum*, namely, *Z. piperitum*, D. C., and *Z. alatum*, Roxb.* The first is a native of Japan, in which country its fruits are used as a condiment; the second is indigenous to India and China, and, as proved by specimens obtained by my brother, Thomas Hanbury, of Shanghai, is the source of the *Hwa-tseaou* of the Chinese shops.

Zanthoxylum alatum, first noticed by Capt. Hardwicke, in 1796,† is a small tree occurring in various parts of Northern India, as in Oude, Rohilcund, Kumaon, Nepaul, Sikkim, Bhotan, and Khasia, and extending far eastward into China. As may be expected from so extensive a range, it varies considerably, especially as to the size of its leaves and number of its leaflets, and the number and size of its spines; but the transition from one form to another is so gradual that no botanist who should examine a large series of specimens could doubt their belonging to a single type.

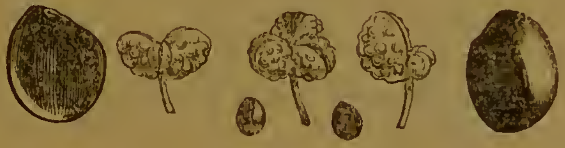

Fig. 1.

The fruits (fig. 1), as found in the Chinese shops, consist of the carpels usually dehiscing and empty, but sometimes enclosing the round, black, shining seed.

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* I retain Roxburgh's name for this plant, because I am certain of its identity. Steudel supersedes it by that of *Z. acanthopodium*, D. C.; but this latter is not identical, at least according to M. Alphonse de Candolle, who, at my request, has kindly compared it with specimens of *Z. alatum*, Roxb., from China.

† *Asiatick Researches*, vol. vi., p. 376.

In perfect specimens we find a slender pedicel supporting the carpels, which are normally four in number, but of which at least one or two are mostly abortive. The carpels are oval or nearly spherical, $\frac{2}{10}$ths of an inch in longest dimension; externally they are of a bright reddish brown, covered with prominent tubercles filled with oleo-resin; internally they are furnished with a hard, papery, white membrane, which becomes loose, contracts and curls up when the seed falls. The drug has a peculiar aromatic taste, and, when crushed, an agreeable and highly aromatic odour—properties due to the oleo-resin contained in the outer part of the carpel.

The fruits of *Zanthoxylum alatum*, Roxb.,* have been subjected to chemical analysis by Dr. Stenhouse, who has obtained from them by distillation:—

1. An essential oil, to which the aromatic properties are chiefly due. This oil, which when pure is called by Dr Stenhouse *Xanthoxylene*, is a hydrocarbon isomeric with oil of turpentine. It is colourless, refracts light strongly, and has an agreeable aromatic odour; its composition is $C_{10}H_8$.

2. *Xanthoxylin*, a stearopten found floating on the water, distilled from the seeds, and also separable from the crude essential oil.

After repeated crystallizations from alcohol, xanthoxylin may be obtained in a state of purity, and then presents the form of large crystals of a fine silky lustre, insoluble in water, but readily soluble in alcohol or ether. It has a very slight odour of stearine, and a slightly aromatic taste. It distils unchanged, its fusing point before and after distillation remaining the same, namely 176° F., and its solidifying point 172.4° F. Its composition is $C_{40}H_6O_4$.

The fruits of *Zanthoxylum alatum* are used in China as well as in India as a condiment. The *Fagara* or *Fagara minor* of the old pharmacologists† is probably referrible to this species.

白蒺藜 *Pih-tseih-le;* Carpels of *Tribulus terrestris*, L. (*Zygophylleæ*); *Pĕ ciĕ lî*, Cleyer, *Med. simp.*, No. 28; *Pun-tsaou*, fig. 322.—These little spiny carpels have slightly astringent properties. Loureiro states that they are beneficial in *hæmorrhagia narium* and in dysentery; also as the basis of a gargle in tenderness of the gums, and in ulcers and inflammation of the mouth and throat.

The herb was formerly officinal in Europe, but is now obsolete.

巴豆 *Pa-tow;* Fruits of *Croton Tiglium*, Lam. *(Euphorbiaceæ); Pā teú*, Cleyer, *Med. simp.*, No. 224.

The seeds, from their drastic purgative properties, are regarded by the Chinese as extremely poisonous.

呂松菓 *Leu-sung-kwo;* Seeds of *Strychnos Ignatia*, Juss. (*Loganiaceæ*); Saint Ignatius Beans.—These well-known seeds are imported from the Philippines, in the Bisayas provinces of which islands, the tree which affords them is stated by Blanco, the author of the *Flora de Filipinas*, to be common. But neither this botanist nor any other has been able, that I am aware of, to procure complete specimens of the tree, so that it is as yet undescribed.

木鼈子 *Muh-pëĕ-tsze*, also called *Fan-muh-pëĕ;* Seeds of *Muricia Cochinchinensis*, Lour. (*Cucurbitaceæ*); *Pun-tsaou*, fig. 387 and 386; *Mŏ piĕ cù*, No. 188, Cleyer.—Orbicular or obscurely triangular compressed seeds (fig. 2), tubercled at the margin, and having a dark brown, fragile, rugose testa, frequently marked with depressed reticulations; in diameter they vary from $\frac{3}{4}$ to $1\frac{1}{4}$-inches. The yellow cotyledons within are extremely oily.

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* Erroneously supposed at the time to be those of *Z. piperitum* D. C.

† *Vide* Dale, *Pharmacologiæ Suppl.*, Lond., 1705, p. 298; also Chabræus, *Stirpium Sciagraphia*, Genev., 1677, p. 26.

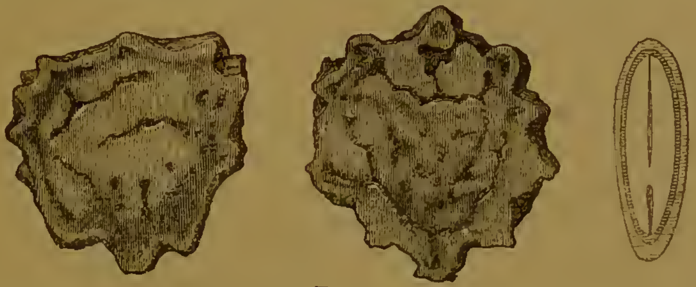

Fig. 2.

According to Loureiro, the seeds and leaves of *Muricia Cochinchinensis* are aperient, and useful in the treatment of tumours and malignant ulcers, and of obstructions of the liver and spleen. The plant is a native of China and Cochin China; it is not enumerated in the Flora of Hong Kong,* and, I believe, has not been obtained by any collector in recent times. There is an indifferent specimen of Loureiro's in the British Museum.

决明子 *Keuĕ-ming-tsze*; 草决明 *Tsaou-keuĕ-ming*; Seeds of *Cassia Tora*, L. (*Leguminosæ*).—Tatarinov, *Catal. Med. Sinens*, p. 5; Ainslie, *Mat. Indica*, vol. ii., p. 405.

Seeds of a cylindrical form, 2 to 3 lines long, pointed at one extremity, rounded at the other, of a dark brown colour with two light stripes on opposite sides.

石栗 *Shih-leih*; Seeds of *Aleurites triloba*, Forst. (*Euphorbiaceæ*); *Juglans Camirium*, Loureiro.—The kernel of the seed yields abundance of oil.

楮實子 *Choo-shih-tsze*; The small seed-like nuts or achenes of *Broussonetia papyrifera*, Vent. (*Moreæ*), Paper Mulberry Tree.

These are roundish seed-like bodies somewhat smaller than the seeds of white mustard, slightly compressed and keeled on one side, of a pale brown, or, when fresh, orange colour. The fleshy part of the compound fruit is saccharine and edible; what virtues the seeds are supposed to possess, I do not know. The inner bark of the tree is used in Japan for the manufacture of paper, as is fully described by Kæmpfer.†

使君子 *She-keun-tsze*; Fruit of *Quisqualis indica*, L. (*Combretaceæ*); *Pun-tsaou*, fig. 385.

These fruits (fig. 3) are about an inch in length, oval or oblong, pointed at either extremity, and sharply pentagonal. The woody pericarp is thin, fragile, and of a deep mahogany colour, and encloses an oily seed. Loureiro states that the seeds used daily are recommended as an anthelmintic and in the rachitis of children.‡ Their anthelmintic properties, though recorded by Rumphius and several subsequent writers besides Loureiro, have not attracted much attention in Europe. Recently, however, Dr. E. J. Waring, of Travancore, has published a paper on some of the principal

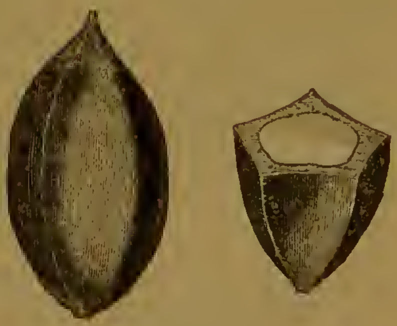

Fig. 3

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* Bentham, *Flora Hongkongensis*, Lond., 1861, 8vo.
† *History of Japan* (Scheuchzer's translation), Lond., 1727, Appendix, p. 22.
‡ *Flor. Cochinch.*, p. 337.

indigenous anthelmintics of India, in which he has quoted some favourable reports of the properties of the seeds in question.* From these it appears that the seeds are chiefly used against *lumbrici*, especially when occurring in children. They are sometimes given almost *ad libitum*, but generally the dose of four or five good seeds is found to be sufficient.

訶子 *Ho-tsze;* 柯勒黎 *Ko-lih-le;* Fruits of *Terminalia Chebula* Roxb. (*Combretaceæ*); Chebulic Myrobalans.

These fruits are well known in English commerce on account of their astringent properties, which render them valuable in various processes of dyeing. In medicine they have been held in esteem for ages, not only on account of their astringency, but also from their mildly purgative properties. Hill remarks that when given in substance they do not exert their purgative faculty at all, but are astringent only, whereas when administered in infusion or decoction they open the bowels in a very gentle and easy manner.† In China, Europeans, I am informed, occasionally have recourse to myrobalans as an aperient—at the instance, I suppose, of native practitioners. The dose is from 2 to 4 drachms in infusion.

蒼耳子 *Tsang-urh-tsze;* Fruits of *Xanthium strumarium*, L. (*Compositæ.*) Bentham, *Flor. Hongkong*, p. 181; *Pun-tsaou*, fig. 252; *Çam 'lh çù*, Cleyer, *Med. Simp.*, No. 114; Kæmpf. *Amœn.*, p. 892.

Xanthium strumarium, an almost ubiquitous weed in temperate and warm climates, is found both in China and Japan. Its leaves, under the name of *Herba Lappæ minoris*, were formerly officinal in Europe, and were administered internally in scrofula, herpes, &c., and externally as an application to scrofulous tumours ‡

蛇床子 *Shay-chwang-tsze;* Fruits of *Cnidium Monnieri*, Cusson (*Umbelliferæ*).—*Xĕ choám çù*, Cleyer, *Med. Simp.*, No. 37; *Pun-tsaou*, fig. 157.

Minute ovoid umbelliferous fruits; mericarps, with very prominent equal ribs, one vitta between each; commissure bi-vittate.

Cnidium Monnieri has been found by the Russian botanists in inundated spots on some of the islands of the Amoor, where, however, it does not appear to be a common plant. It also occurs in the neighbourhood of Pekin.§

榧實 *Fe-shĭh;* Seeds of *Torreya nucifera*, S. et Z. (*Taxineæ*); *Taxus nucifera*, L.; *Podocarpus nucifer*, Loud.—*Fey-tsy*, Tatarinov, *Catal. Med. Sin.*, p. 23; *Fi vulgò Kaja*, Kæmpf. *Amœn*, p. 814, fig. p. 815; *Pun-tsaou*, fig. 672.

From 1 to 1½ inches long, ovoid or oblong, cylindrical, pointed at the upper extremity, less so at the lower. The testa is of a cinnamon-brown colour, woody and fragile, marked longitudinally with broad, shallow striæ, and having a smooth scar at the base, near to which, and opposite each other are two small oblong prominences. The nucleus, which is deeply corrugated, is covered by a thin brown membrane; its base is marked by a conspicuous cicatrix.

The seeds of *Torreya nucifera* are eaten like hazel nuts, and although reputed somewhat laxative, are considered wholesome. In Japan an oil is expressed from them, which is used for culinary purposes.

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* *Indian Annals of Medical Science*, No. 12 (1860).

† *History of the Mat. Med.* Lond., 1751. 4to, p. 503. Myrobalans were included in the *Materia Medica* of the London Pharmacopœia down to the year 1721.

‡ Murray, *App. Medicam.*, vol. i. (1793), p. 212; Geiger, *Pharm. Univers.* (1835), i., p. 128.

§ Maximowicz, *Primitiæ Floræ Amurensis* (1859), pp. 126, 472.

白菓 *Pih-kwo ;* **銀杏** *Yin-hăng* (*Silver-almond*); Seeds of *Salisburia adiantifolia*, Sm. (*Taxineæ*).—*Gingko biloba*, L.; Gingko, arbor nucifera folio adiantino, Kæmpf. *Amœn*, p. 811; *Pun-tsaou*, fig. 658.

These are nut-like, oval, pointed seeds, from ½ an inch to an inch long, keeled lengthwise on two sides, and having a smooth, fragile, bony, pale brown, outer shell, or testa. The nucleus of the seed consists of amylaceous albumen enclosing a pair of long, narrow cotyledons, the whole enveloped in a delicate reddish-brown membrane.

Salisburia adiantifolia is commonly cultivated both in China and Japan, where it attains a large size. The male plant was introduced into Europe about a century and a half ago; the female much more recently. The tree is not uncommon in gardens; and in the warmer parts of the Continent it ripens its handsome, plum-like, yellow fruits perfectly. The seeds, Kæmpfer tells us, are eaten to promote digestion "ac tumentem ex cibo ventrem laxare!" The pulp, which has a penetrating offensive smell of butyric acid, has been chemically examined by Dr. Schwarzenbach,* who has extracted from it by means of ether a peculiar crystallizable fatty acid, which has been named *Gingkoïc acid*, and which has the composition $C_{48} H_{47} O_3 + HO$. Gingkoïc acid forms tufts of acicular crystals, which have not been obtained colourless, but are of a brownish-yellow; it is easily soluble in alcohol or ether, and exhibits in either case a strong acid reaction. It fuses at 95° F., and congeals at 50°. Heated with solution of potash, it formed a soap-like compound. The other constituents of the pulp are pectin, gum, glucose, citric acid, and chlorophyll.

大海子 *Ta-hai-tsze ;* Fruits of *Erioglossum ?* or *Nephelium ?* (*Sapindaceæ*); *Boa-tam-paijang*, Guibourt, *Hist. des Drogues*, tome iii., page 543; *Bungtalai* (otherwise written *Poung-ta-rai*) of the Siamese.

This fruit is of some interest as having been introduced into France about twenty years ago as a certain specific in diarrhœa and dysentery. Its claims to this character, which were tested in the Hôpital Beaujon in Paris, did not however hold good, no results being obtained from its use, but such as were attributable to the effect of repose, diet, and a mucilaginous beverage. But the drug had the merit of an unknown origin, a barbarous name, and a very high price,† and notwithstanding the unfavourable report made upon it by those officially appointed to give it a trial, it continued for some time to be prescribed.

Boa-tam-paijang, for such is the name under which it was introduced into Europe, though in Bangkok, whence I have received specimens, it is better known as *Bungtalai*, is produced in Cambodia, from a tree which has not at present been botanically determined. Sir Robert H. Schomburgk, British Consul at Bangkok, succeeded in obtaining fresh seeds, which germinated, but the young plants thus raised perished before attaining maturity. The leaves which Sir Robert sent me are about 5 inches long, *simple*, entire, oblong or ovate, acuminate, rounded or subcordate at the base, and perfectly glabrous on both sides. The fruits, as found in commerce (fig. 4), are from ¾ to 1¼ inches long, ovoid, usually somewhat elongated at the lower extremity, which terminates by a large oblique cicatrix. Externally they are of a dark brown, deeply wrinkled, though generally less so at the superior extremity. The pericarp, which is from $\frac{1}{10}$ to $\frac{1}{20}$ of an inch in thickness, consists of a thin epidermis, beneath which lies a dry, black, resinous-looking pulp, surrounding a fragile shell lined with a whitish membrane (the testa of the seed?). The central part of the fruit is occupied by two cotyledons, which in their dried and shrunken state are thin and concave: the radicle is inferior, very short and turbinate. When the fruit is macerated in water, its outer shell or pericarp increases enormously in volume, forming a large gelatinous mass.*

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* *Vierteljahresschrift für Praktische Pharmacie*, Bd. vi., 424.

† In the wholesale price list of MM. Menier, druggists, of Paris (1854), it is quoted at 200 francs per kilogramme, *i. e.* £3 13*s.* per lb.

It is this mucilaginous property that confers a value on the fruit in the eyes of the inhabitants of China and Siam, in both which countries the jelly is sweetened and eaten as a delicacy.

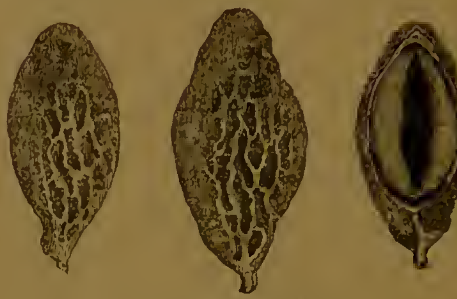

FIG. 4. (The right hand figure represents a fruit cut longitudinally.)

Boa-tam-paijang has been analyzed by Professor Guibourt, and found to consist of the following substances:—

In the pericarp.		
Green oil	1.06	64.90
Bassorine	59.04	
Brown astringent matter Mucilage	1.60	
Woody fibre and epidermis	3.20	
In the nucleus.		
Fatty matter	2.98	35.10
Saline and bitter extract	0.21	
Starch Cellular tissue	31.91	
		100.00

槐 實 *Hwae-shih*; Legumes of *Sophora Japonica* L. (*Leguminosæ*).

Sophora japonica is a tree of very common occurrence in China and Japan, and not unfrequent in the gardens of Europe. Its flowers called *Hwae-hwa* are largely used in China for dyeing yellow, or rather for rendering blue cotton green,† and the legumes are said by Enlicher to have a similar application.‡

These latter, in the dried state, are from 1 to 4 inches long by $\frac{3}{10}$ to $\frac{4}{10}$ of an inch wide, wrinkled, fleshy, semi-transparent, more or less contracted between the seeds, which usually do not number more than six in each legume.

皂 角 *Tsaou-keŏ*; Legumes of *Gleditschia Sinensis* Lam. (*Leguminosæ*), *Mimosa fera* Lour.; Tatarinov, *Catal. Med. Sin.*, p. 57.

The valves of the broad, flat pods are regarded, according to Loureiro, as attenuant, stimulant, and purgative. They are also lauded for their effects in the removal of phlegm and other viscid humours, and in the form of a sternutatory or suppository are said to be peculiarly efficacious in apoplexy, hemiplegia, and paralysis.

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* Sir R. H. Schomburgk has been told that where the trees grow by a road-side, their fruits sometimes drop to the ground so abundantly, that if they become wetted with rain, such a mass of glutinous jelly is formed as to render the passage of the road on foot or horseback a matter of difficulty.

† Martius on *Wai-fa*, the flower-buds of *Sophora Japonica*. *Pharm. Journ.*, Aug., 1854, p. 61.

‡ *Enchiridion Botanicum*, p. 677.

補骨脂 *Poo-kwŭh-che;* Legumes of *Psoralea corylifolia* L. (*Leguminosæ*); *Pun-tsaou,* fig. 177.

These are flat, oval or reniform, black, one-seeded legumes, which being very small and indehiscent may readily be mistaken for seeds; they are about two lines long, and are sometimes surrounded by the calyx, which is 5-lobed and marked with prominent nerves. The fruits of this *Psoralea* have an aromatic flavour, and are used in India (of which country the plant is a native) as a stomachic, as well as in certain inveterate cutaneous diseases.*

肥皂荳 *Fe-tsaou-tow; Dialium* sp.? (*Leguminosæ*).

These are smooth, black seeds (fig. 5), ¾ of an inch in diameter, of a compressed spherical form, each furnished (when perfect) with a large, rigid, persistent podosperm. A transverse section shows a pair of plane cotyledons, between the flat sides of which and the thick and hard testa, lies a layer of black, horny albumen.

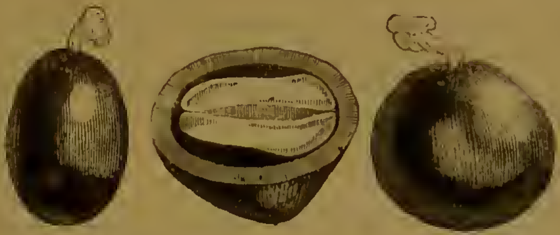

FIG. 5. (The figure in the centre shows the transverse section of a seed slightly magnified.)

Of the origin and application of this drug I have no information.

枳椇子 *Che-keu-tsze;* Fruits of *Hovenia dulcis* Thunb. (*Rhamneæ*); *Sicku* Kæmpfer, *Amœn.* 808, 9; *Pun-tsaou,* fig. 684.

The curiously-contorted, fleshy, fruit-bearing peduncle is edible, and said to have the flavour of pears. It is used in China and Japan to diminish the effects of an excess of wine.

海金砂 *Hae-kin-sha;* Spores of a Fern (*Filices*); *Pun-tsaou,* fig. 325; Cleyer, *Med. simp.* No. 173.

A light, mobile, rufous-brown powder, which, when thrown into the air and ignited, burns like lycopodium, for which substance it might be substituted.

枳殼 *Che-kŭh;* Dried Fruits of *Citrus fusca* Lour. (*Aurantiaceæ*), *Flor. Cochinch.* ed. Willd. 571.

My specimen of this drug consists of the fruit cut into halves and dried; in this state it forms circular discs of from 1 to 2 inches in diameter, nearly flat on the cut side, convex on the exterior. The peel is firm and excessively thick, being about half the diameter of the dried pulp: externally it is rough and of a deep blackish-brown, internally of pale buff. It is bitter and agreeably aromatic.

Loureiro states that *Citrus fusca* is widely diffused in Cochin China, but less common in China. He adds that the entire peel of the fruit is considered attenuant, deobstruent, and mildly cathartic.

The zest of a thick-skinned orange or citron dried in very thin slices, is found in the Chinese drug shops under the name of 橘白 *Keŭh-pih.*

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* Ainslie, *Mat. Indica,* vol. ii., p. 141.

青皮 *Tsing-pe;* Immature Fruits of *Citrus* —— ? (*Aurantiaceæ*); *Cin-pi*, Tatarinov, *Catal. Med. Sinens.*, p. 12.

In Tatarinov's Catalogue, these fruits are referred to *Citrus microcarpa*, Bge., a plant which Professor Bunge describes as "*frutex in caldariis Pekinensibus frequens, fructu maturo mense Januario et Februario onustus.*"* I do not know what further range this plant may have, but if it is only cultivated on a small scale with artificial heat, it can hardly be the source of a common drug like that under notice: I think it best therefore to leave the species of *Citrus* undefined.

The fruits called *Tsing-pe* are from $\frac{4}{8}$ to $\frac{5}{8}$ of an inch in diameter, and resemble the *Baccæ Aurantii* of European pharmacy, except that the latter have a somewhat less rough exterior.

馬兜鈴 *Ma-tow-ling;* Fruits of *Aristolochia Kæmpferi* Willd., *Sp. Plant.* VI., pars i., p. 152 (*Aristolochieæ*); Hoffmann et Schultes, *Journ. Asiatique*, Oct., Nov., 1852, p. 275; *Kæmpf. Icones*, tab. 49; *Pun-tsaou*, fig. 388.

Oval fruits of 1 to 1$\frac{3}{4}$ inches in length, formed of six thin and papery valves, enclosing large, flat, obtusely-triangular, winged seeds. Each fruit is supported on a pedicel at least as long as itself.

In Tatarinov's Catalogue the name *Ma-tow-ling* is referred to *A. contorta* Bunge, an identification I have not been able to confirm, though I have had the kind assistance of Professor Bunge. *A. contorta* is found in the neighbourhood of Pekin, and occurs also in the Amoor country.

菟絲子 *Too-sze-tsze;* Seeds of *Cuscuta europæa* L. (*C. major* Bauh.) (*Convolvulaceæ*); *Pun-tsaou*, fig. 379; *Tú sū çù*, Cleyer, *Med. simp.* No. 9; *Tu-sy-tsy*, Tatarinov, *Catal. Med. Sinens.*, p. 61.

Roundish seeds of a light brown colour, about the size of black mustard. The long filiform embryo, spirally rolled round the fleshy albumen, which is characteristic of the genus *Cuscuta*, may be readily seen if a seed be soaked in water and its testa then removed.

For the species of *Cuscuta* to which these seeds are referred, I adopt the authority of MM. Hoffmann and Schultes;† but although *C. europæa* is found in Japan, and probably occurs in China also, there is another species, *C. chinensis* Lam., the seeds of which I find to be extremely similar, so that it is very likely they may pass under the same native name. I am not aware what virtues are ascribed by the Chinese to this drug. The entire plant (*Herba Cuscutæ majoris*) was formerly officinal in Europe as a purgative.

蓮子 *Lien-tsze;* Nuts of *Nelumbium speciosum* Willd. (*Nelumbiaceæ*); *Pun-tsaou*, fig. 703.

These nuts, which in shape and size resemble small acorns, are produced by the well-known Nelumbrium or Egyptian Bean, called in China *Water Lily*, a plant extensively cultivated both in that country and in India, as well for its ornamental flowers as for its various useful properties. The nuts have a farinaceous kernel, which, when boiled or roasted, is good to eat. The thick fleshy rhizome is likewise edible when cooked; the starch which it contains, separated by rasping and washing, constitutes a sort of arrowroot, called by the Chinese 藕粉 *Gaou-fun.*

菱 *Ling;* Fruits of *Trapa bicornis* L. (*Halorageæ*); *Pun-tsaou*, fig. 704.

The plant is abundant on canals and shallow lakes, from the surface of which its singular fruits (fig. 6) are collected in immense quantities, on account of their kernels, which, when roasted, are edible.

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* *Mémoires présentés à l'Académie Impériale des Sciences de St. Pétersbourg*, tome 2 (1835), p. 84.

† *Journal Asiatique*, Oct., Nov., 1852, p. 288.

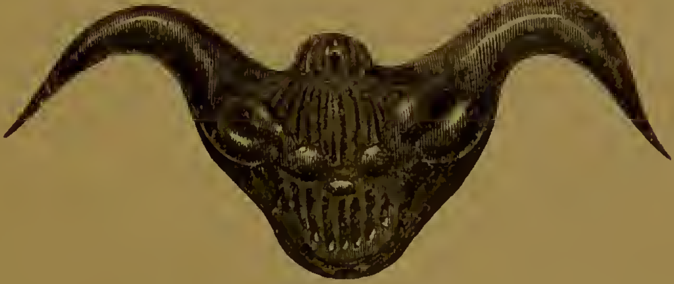

FIG. 6.

梔 子 *Che-tsze;* 山 梔 *Shan-che;* Dried Fruits of two or more species of *Gardenia* (*Rubiaceæ*); Che-tsze, *Pun-tsaou*, fig. 783; Czzi-tsy (Che-tsze), *Fructus Gardenia floridæ*, Tatarinov, *Cat. Med. Sinens.*, p. 17.

Under the above Chinese names (otherwise spelt *Tchi-tse* and *Chan-tchi*) I have received the dried fruits of two species of *Gardenia*.

The larger (fig. 7), called *Che-tsze*, occurs as a smooth, oblong, orange-brown, imperfectly two-celled berry, of from $1\frac{1}{4}$ to 2 inches in length, crowned with the remains of the calyx, which are prolonged down the sides of the fruit in six prominent ribs. The pericarp is fragile and horny, marked internally by two narrow projecting receptacles. The seeds are numerous and imbedded in a dark orange pulp.

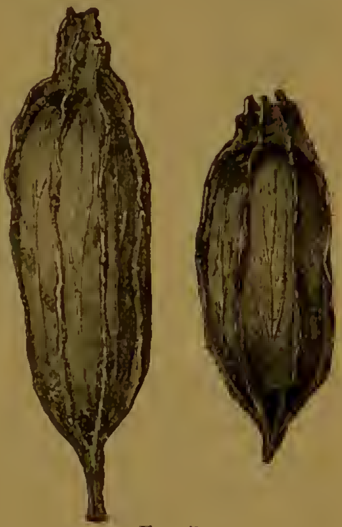

FIG. 7.

Dr. T. W. C. Martius has presented me with specimens of this fruit under the name of "*Wongshy*" (*Whang-che* 黄 梔), and refers it to *Gardenia radicans* Thunb.

The smaller fruit (fig. 8) called *Shan-che*, is from $\frac{8}{10}$ to $\frac{1}{2}$ an inch in length, of an ovoid form, smooth, six-ribbed, furnished on the inner surface of the pericarp with two narrow wing-like receptacles opposite each other. The seeds are nidulant in an orange pulp.

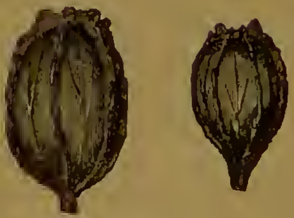

FIG. 8.

The precise species of *Gardenia* affording each of these fruits is not yet clearly made out. There appear to be at least three plants, whose fruits are used on account of their colouring properties. These are :—

1. *Gardenia florida* L., a large, very ramous shrub, native of Japan, China, India, &c. Major Champion found it in abundance in several localities in Hong Kong.* Mr. Fortune has informed me that it is common in the hilly districts at some distance from Shanghai, and that its fruit is collected for dyeing purposes, but not produced so abundantly as that of *G. radicans*.

2. *Gardenia radicans* Thunb., a much smaller plant than *G. florida*, with a

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* *Hooker's Journ. of Bot.*, vol. iv. (1852), p. 193.

decumbent rooting stem. It is native of Japan, China, India, &c. Mr. Fortune has given me its Chinese name as *Whang-tsze*, and stated that its fruit is commonly collected in the north of China for its colouring properties.

3. *Gardenia grandiflora* Lour., a native of Cochin China. Loureiro mentions that its fruits impart a beautiful colour to silk, and that they are also used medicinally in decoction, in fevers and in a variety of other complaints.*

The fruits of these Chinese Gardenias (which are so similar in properties that the analysis of one will probably serve for the other two) have been examined by several chemists, among whom, as the most recent, may be mentioned Mr. Lorenz Mayer, of the laboratory of Professor Rochleder, of Prague. According to the investigations of this gentleman,† the splendid yellow colour of the *Gardenia* is due to a body named *Crocine*, which appears to be identical with the polychroite of saffron. Crocine is uncrystallizable; when in powder it is of a bright red colour; it dissolves readily in water or alcohol, its solution possessing the colour of chromic acid. Salts of lead give orange-red precipitates with a solution of crocine; if a concentrated aqueous solution be treated with sulphuric acid, the mixture assumes an indigo-blue colour, which changes to violet. By the decomposition of Crocine, a body called *Crocetine* is obtained. The composition of Crocine is $(2\,C_{58}\,H_{42}\,O_{30}) + HO$; that of Crocetine, $C_{42}\,H_{23}\,O_{11}$.

橄 欖 *Kan-lan*; Fruits of two or more species of *Canarium* (*Burseraceæ*) *Pun-tsaou*, fig. 668; Chinese Olive.

Most persons who have lived in China are acquainted with a small edible fruit, which, from its oblong shape and being generally sold preserved with salt, has acquired the name of *Chinese Olive*. The stones of this fruit are also well known from being frequently carved into beads and other ornaments. The Chinese olive, I need hardly observe, has not the least affinity with the true olive (*Olea Europæa* L.), but belongs to the natural order *Burseraceæ* and genus *Canarium*. The precise species, for there are probably two or three, are not well made out. Loureiro describes in his genus *Pimela*, now referred to *Canarium*, two plants yielding edible fruits, namely, *P. nigra* (*Canarium Pimela* Konig and Sims, *Annals of Botany*, vol. i., 1805, p. 361, tab. 7, fig. 1) and *P. alba* (*Canarium album* Raeuschel, *Nomenclator Botanicus*, ed. 3, 1797 p. 287).

Dried specimens of the fruits of these plants were presented to me by the late Mr. Reeves. That of *Pimela nigra* is an oval drupe 1½ inches long, covered with a smooth black skin. The pulp, which is rather firm, surrounds a large, obscurely triangular, pointed stone. The fruit of *Pimela alba* resembles that of *P. nigra*, except that it is of a pale brown and has its outer skin much corrugated by drying.

Besides these and probably distinct from them, there are, according to my friend Mr. Lockhart, two other fruits used by the Chinese and commonly sold at certain seasons, the one at Shanghai, the other at Foo-chow. As I have not seen either of these fruits, I can offer no opinion upon them; but to those resident in the districts in question, I would address the request for specimens, including the pressed and dried flowers and leaves of the plants, in order that their botanical names may be determined. It is also desirable to ascertain in each case, how the fruit is used by the Chinese, by what names it is known and if the tree is cultivated or grows spontaneously.

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* *Flor. Cochinch.*, p. 183.

† On the Yellow Colouring Matter of the Fruit of *Gardenia grandiflora*, by F. Rochleder. *Chemical Gazette*, Sept. 1, 1858, p. 331. *Pharm. Journ. and Trans.*, vol. xviii. (1859), p. 626.

川練子 *Chuen-lëen-tsze;* Fruits of *Melia* sp. (*Meliaceæ*); *Czuan-lan-tsy,* Tatarinov, *Catal. Med. Sinens.*, p. 15; *Pun-tsaou*, fig. 745.

A fleshy, globular drupe about an inch in diameter, covered with a shining, thin, horny, yellowish-brown skin, within which, surrounded by dried pulpy matter, is a large stony endocarp, furrowed longitudinally and containing seven or eight cells, of which however, not more than six are usually developed. Loureiro gives *Xún-lién* (Chuen-lëen) as the Chinese name of *Melia Azedarach* L., but the fruits of that tree are five-celled and much smaller than those in question. The drug under notice is used in China as a vermifuge.

大楓子 *Ta-fung-tsze;* Seeds of *Chaulmoogra* sp. (*Pangieæ*); *Pun-tsaou* fig. 773; *Da-fyn-tsy*, Tatarinov, *Cat. Med. Sinens.*, p. 19.

These seeds (fig. 9), which are imported into China from Siam, are from $\frac{4}{8}$ths to $\frac{7}{8}$ths of an inch long, of an oblong or ovoid shape, very irregular, owing to mutual pressure in the fruit of which they formed a part. They consist of a hard woody outer shell (testa), to whose surface, portions of firm, dry pulp, or of the rind of the fruit, are often adherent,—sometimes so as to unite two or three seeds into a mass. The albumen is oily and encloses large, heart-shaped, leafy cotyledons.

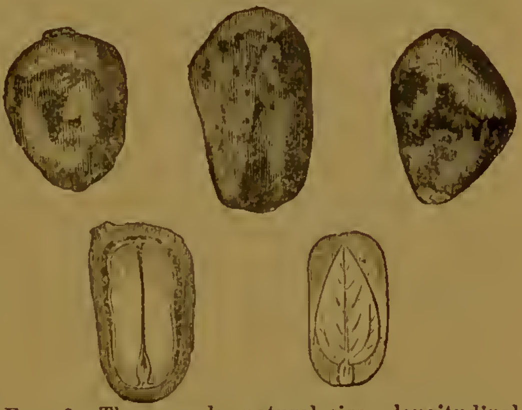

FIG. 9.—Three seeds, natural size; longitudinal section of a seed; half-seed (testa removed) showing leafy cotyledon.

The plant affording these seeds is not well ascertained. It is doubtless a species of *Chaulmoogra;* probably, judging from the resemblance of the seeds, nearly allied to the Indian *C. odorata* Roxb. The seeds of the latter plant are larger, and have a thinner and smoother testa than is the case with those found in the Chinese shops. Both seeds have a reputation as a remedy in skin complaints, especially in that most frightful of eastern diseases, leprosy. Dr. Hobson, late of the Canton Hospital, whose experiments appear to have been made with the seeds of the Indian *Chaulmoogra*, reports respecting them,* that he has found them to effect a cure in mild cases of leprosy, not of long standing; that the remedy (consisting of the powdered, oily nucleus of the seed) was administered in one-drachm doses twice a day during a period of four months or more, and that the expressed oil of the seeds was occasionally rubbed on the affected surfaces. The first appearance of improvement observed, was in the eruption becoming less prominent and red, minute white scales appearing round the circumference of the patches and the central parts assuming the character of healthy skin. Saline aperients are to be administered occasionally during the course of treatment.

蓮翹 *Lëen-keaou;* Fruits of *Forsythia suspensa* Vahl. (*Oleaceæ*); Siebold et Zuccarini, *Flora Japonica,* p. 10, t. 3.

As found in Chinese commerce, these are little, boat-shaped, brown capsules, $\frac{1}{2}$ to $\frac{3}{4}$ of an inch long, with a thin longitudinal partition. They constitute the valves of the fruit, which, in its perfect state, is thus described by Endlicher:—"Capsula ovata, compressiuscula, sublignosa, corticata, bilocularis, loculicido-bivalvis, valvis planiusculis, medio septiferis. Semina in loculis pauca, pendula,

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* "On the Leprosy of the Chinese." *Med. Times and Gazette*, June 2, 1860, p. 558.

compressa; testa membranacea hinc in alam angustam, inde in marginem angustissimam expansa. Embryo in axi albuminis carnosi, parci rectus; cotyledonibus foliaceis, radicula brevi, cylindrica, supera."*

I know not what virtues are ascribed to this drug: it appears to be devoid of any important property.

梧桐子 *Woo-tung-tsze;* Seeds of *Sterculia plantanifolia* Lin. fil. (*Sterculiaceæ*).

Spherical, about the size of peas, externally covered with a shrivelled, shining, pale-brown skin.

畢登茄 *Peĭh-ching-kea;* Berries of *Daphnidium Cubeba* N. ab E. (*Laurineæ*); *Laurus Cubeba* Lour.; *Cây Mang tang* (Cochinchinese).

The Chinese name *Peĭh-ching-kea,* under which I have received these berries, appears to be also applied to cubebs; and in fact, if one may judge from the wood-cut in the Pun-tsaou (fig. 690), it is to the latter drug that it properly belongs. Whether the Chinese confound the two and use them indiscriminately, or whether they consider one as a mere variety of the other, I am unable to say. The friend who obtained one specimen in my possession, presented it to me marked "*Cubebs,*" and I believe he is not the only person who has fallen into such an error. M. Rondot, in his *Commerce d'Exportation de la Chine* (Paris, 1848) enumerates cubebs as a production not only of Java, but of China likewise; he also mentions that the Chinese cubebs are exported exclusively to India, whence we may conclude that they are not suitable for European markets. Are not these Chinese cubebs the drug under notice?

The drug which I have received consists of small berries, which, in size, form, and general appearance, much resemble peppercorns or cubebs; examined attentively, however, they are seen to be one-seeded globular berries (fig. 10) attached to a pedicel sometimes half an inch long; at the base of each berry traces of the perianth are visible. The pericarp is thin, fleshy, and in the dried state, corrugated. The seed is globular, with its cartilaginous, shining brown testa surrounded longitudinally by a narrow ridge. The cotyledons are hemispheral, thick, and oily; the radicle superior.

In endeavouring to assign a botanical origin to this drug, I have been guided chiefly by two considerations:—1. The evident laurineous structure of the berries. 2. Their superficial resemblance to cubebs. Turning to Loureiro's *Flora Cochinchinensis,* we find, under the name *Laurus Cubeba,* a tree described, the fruit of which so remarkably coincides with the drug under notice, that I cannot but conclude the two are identical. This tree was transferred by Nees ab Esenbeck, in his *Systema Laurinarum,* to the genus *Daphnidium,* but he borrowed the description of it from Loureiro, and had evidently examined no specimen—in fact, it is apparently unknown to

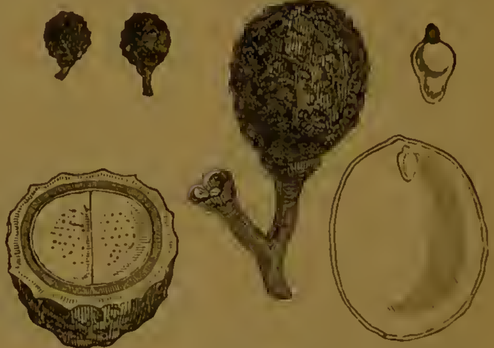

FIG. 10.—Two berries, natural size; berry magnified, and transverse section of ditto; cotyledon with radicle (magnified).

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* *Gen. Plant.*, p. 573.

recent botanists. Loureiro describes its fruit as "Bacca globosa, nigra, pedunculata, minima: semine globoso." He adds that the berries are strengthening, cephalic, stomachic, and carminative, and that in decoction they are useful in vertigo, hysterical affections, paralysis, melancholy, and impaired memory—properties which are possessed by the bark, though to a less degree. The fresh fruits are used for the preserving of fish. The odour of the berries is fragrant, their taste is aromatic, and somewhat pungent, and occasions a flow of saliva. They have the size, form, and colour of black pepper. Each berry is attached to a slender, rather long pedicel, whence they might be called not inappropriately *Piper caudatum*.

Daphnidium Cubeba is cultivated in Cochin China, andprobably in Southern China also. Loureiro omits to give its Chinese name.

牙皂 *Ya-tsaou;* Legumes of *Prosopis?* (*Leguminosæ*); *Yà Caò* Cleyer, *Med. Simp.*, No. 223.

These are the pods of some leguminous tree at present undetermined, but which, judging from analogy, is probably not far distant from the genus *Prosopis*. They are from two to four inches long, and from $\frac{3}{10}$ to $\frac{5}{10}$ of an inch broad, more or less sickle-shaped and compressed, their upper edge prolonged into a narrow wing. The anterior extremity is pointed, the posterior attenuated into a sort of stalk. The pods are indehiscent, and have thick, pulpy valves, which are externally smooth and of a deep brown. The substance of the pod, when chewed, even in very small quantity, produces an extremely disagreeable sense of acridity in the fauces. Its properties are thus quaintly described by Cleyer: "Intrat hepar et stomachum. Catarrhos solvit. Aperitivum est meatuum. Tumores complanat." The drug is said to be produced in the province of Szechuen."

草蔻 *Tsaou-kow.*—Large Round China Cardamom, *Pharm. Journ.*, xiv., 353, fig. 1, 2.

Although this species of cardamom, as well as those that follow, have already been described and figured in the *Pharmaceutical Journal*,* it will probably add to the value of this paper, if I briefly recapitulate the characters by which they are distinguished, and the chief points of interest attaching to them.

The *Large Round China Cardamom* varies considerably in size, my specimens being from $1\frac{2}{10}$ inches to $\frac{6}{10}$ of an inch in length. The capsules are somewhat oval or globular, pointed at either extremity, obscurely three-sided (except at the base, where the triangular character is strongly marked); they are sometimes attached to a long pedicel. The pericarp closely invests the mass of seeds; it is brown, and strongly marked by interrupted longitudinal ridges; it is hardly aromatic. The seeds are coherent into a three-lobed mass; they are generally light greyish-brown, somewhat oblong and angular, with a deep furrow on one side; they have a slight aromatic odour and taste, the latter suggestive of thyme, though much weaker. This cardamom, as generally met with in the Chinese shops, has been deprived of its husk. It is a native of the South of China and of Cochin China, whence it is exported. It appears to be much employed in Chinese medicine as a stomachic, but it must be very inferior in power to some other species.

Small Round China Cardamom.—Cardamome ronde de la Chine.—Guibourt, *Hist. des Drog.*, éd. 4, tome ii. (1849), p. 215, fig. 113, 114 (excluding other synonyms); *Pharm. Journ.*, xiv., 354, fig. 3.

A smaller fruit than the preceding, which it much resembles. The following description of it is taken from M. Guibourt's *Histoire des Drogues*:—

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* "On some Rare Kinds of Cardamom." *Pharm. Journ.*, xiv., 352; also, *Journ. de Pharmacie et de Chimie*, Mai et Juin, 1855; *Bonplandia*, 1 Juni, 1855.

"Capsules pedicelled, nearly spherical, from seven to eight lines in diameter, slightly striated longitudinally and much wrinkled in all directions by drying; it is probable, however, that the fruit was smooth when recent. The capsule is thin, light, easily torn, yellowish externally, white within. The seeds form a globular coherent mass. They are rather large and few in number, somewhat wedge-shaped, of an ashy-grey, a little granular on the surface and present on the outer face a bifurcate furrow, shaped like a Y. They possess a strongly aromatic odour and taste."

To this description I may add that, compared with the *Large Round China Cardamom*, the capsules in question are more wrinkled in a network manner, more fragile and thin, and (from immaturity?) much less adherent to the mass of seeds; they are more globose, not triangular at the base, but flat, or even depressed like an apple. Their colour, in all the specimens I have seen, is a brownish-yellow. I cannot confirm M. Guibourt's remark as to the highly aromatic properties of the seeds.

This cardamom, which appears to bear the same Chinese name as the foregoing, is attributed by M. Guibourt to the *Amomum globosum* of Loureiro.

草 菓 *Tsaou-kwo.*—Ovoid China Cardamom. Fruit of *Amomum medium* Loureiro, *Flor. Coch.*, ed. Willd. (1793), p. 5 (*Scitamineæ*) ; *Cao-go*, Tatarinov, *Catal. Med. Sinens.*, p. 5 ; *Pharm. Journ.* xiv., 419, fig. 9.

The *Ovoid China Cardamom* is a product of Southern China, and abundant in the drug shops of Singapore, as well as in those of China. It is an oval or oblong, three-celled, three-valved and obscurely three-sided fruit, of from 1 to 1¾ inches in length. The pericarp is of a dusky greyish-brown, deeply striated longitudinally, thick and coriaceous, frequently covered on the surface with a whitish efflorescence; it is but slightly aromatic. The seeds are very large, often upwards of three lines in length, sharply angular, hard and striated, having a powerful and peculiar aromatic smell and taste.

The seeds of the *Ovoid China Cardamom* are used by the Chinese for a variety of disorders, and, according to Loureiro, are also employed as a condiment.

Amomum medium is a plant known at present only through an unsatisfactory description by Loureiro in his *Flora Cochinchinensis.*

砂 仁 殼 *Sha-jin-kŏ.*—Capsules (deprived of seeds) of *Amomum xanthioides* Wallich. (*Scitamineæ*) ; husks of the *Xanthioid Cardamom. Pharm. Journ.*, xiv., 418, fig. 7.

These empty capsules are mostly attached to a common stalk, which, when perfect, is about five inches long and beset with the remains of sheathing bracts. The superior portion, which is much stouter than the rest, bears the fruits closely crowded together on short, bracted pedicels. No bunch in my possession bears more than twelve fruits, but from the number of pedicels on some specimens it would appear that the flowers at least are often twice as numerous. The capsules having been deprived of seeds are shrunken and compressed, but after soaking in boiling water they acquire their proper volume, becoming nearly spherical and about three-quarters of an inch in diameter. The pericarp is covered with long, acute, recurved spines, which are longest near the base.

Amomum xanthioides is a native of Burmah, where it was discovered by Wallich in 1827. It also occurs in the Laos country and Cambodia, where its fruits are collected for use. The plant being but little known, it was with much pleasure that I learned from Sir R. H. Schomburgk, by a note under date March 28, 1861, that he had just succeeded, after many endeavours, in procuring living specimens, which he had in cultivation at Bangkok, and from which he hoped to obtain flowers and fruits. The seeds of *A. xanthioides* deprived of their pericarp are sometimes sold in the London market as *Malabar Cardamoms*, for which they are not a bad substitute. To what uses the Chinese apply the husks, which are devoid of aroma, I am unable to say.

陽春砂 *Yang-chun-sha.*—Hairy China Cardamom. *Pharm. Journ.*, xiv., 354, fig. 4, 5.

A small scitamineous fruit supposed to be that of Loureiro's *Amomum villosum*, a Cochinchinese plant, of which very little is known. It is sometimes sold attached to the stalk, sometimes removed from it. The scape, which, when perfect, is about three inches long and reclinate, bears as many as eight or ten capsules upon its superior extremity. The capsules are from six to ten lines in length. In the dried state they are oval, occasionally nearly spherical, more or less three-sided, bluntly pointed, with a scar at the summit, rounded at the base, and attached by a pedicel one to two lines long. The pericarp is externally dark brown, marked with obscure longitudinal *striæ* and covered with asperities, which, after soaking in water, are seen to be short, thick, fleshy, closely-crowded spines. It has, when bruised, an aromatic and tar-like odour; the seeds have a similar tar-like odour and taste, not unmixed with the aromatic warmth of the Malabar Cardamom; they are angular, and upon removal of the pericarp, remain united in a three-lobed mass. The scape is densely villous; the pericarp of the immature fruit is slightly so, but in the mature fruits this character is not observable.

This Cardamom is said to grow in the province of Kwang-tung, and in the Yang-yun district of Southern China. It appears to be frequently used in medicine by the Chinese, and is, no doubt, a good representative of the Elettaria Cardamom officinal in Europe.

益智子 *Yĭh-che-tsze.*—Bitter-seeded Cardamom. *Pharm. Journ.*, xiv., p. 418, fig. 8; *Pun-tsaou*, fig. 173.

The capsules are mostly oval, some ovate-oblong, and a few nearly spherical, pointed at the extremities, six to ten lines long. The pericarp is of a deep dusky brown, coriaceous, devoid of hairs, beset longitudinally with interrupted ridges usually about eighteen in number; it has an agreeable aromatic smell and taste. The seeds are obtusely angular and adhere firmly together; they are distinguished by an aromatic, *bitter*, *myrrh-like* taste.

It is not known what plant produces this little fruit. The MS. catalogue of the collection of Chinese drugs at the Royal College of Physicians of London, mentions the province of Kwang-tung as its place of growth, and it is also said to grow in the island of Hainan.

高良薑子 *Kaou-leang-keang-tsze.*—紅豆蔻 *Hung-tow-kow.*—Fruits of *Alpinia Galanga* Willd. (*Scitamineæ*); Galanga Cardamom, *Pharm. Journ.*, xiv., 420, fig. 10, 11.

Capsules about half an inch in length, of an oblong form, somewhat constricted in the middle, or occasionally pear-shaped; some are obscurely three-sided. Each fruit is prominently crowned with the remains of the calyx; in a few, the lower extremity is still attached to a slender pedicel. Most of the capsules are much shrivelled on the outside, apparently from having been gathered while immature; a few, however, retain a plump and smooth appearance. The pericarp varies externally in colour according to its maturity, from a pale to a deep reddish-brown; internally it is whitish. It is glabrous; in the mature fruits thin and brittle, not splitting into valves; in the shrivelled fruits it appears stronger, from its close adherence to the mass of seeds. Upon removal of the pericarp the seeds are seen united in a three-lobed mass, completely invested in a whitish integument, each cell or lobe containing, usually, two seeds, placed one above the other. The seeds are ash-coloured, flattish, and somewhat three-cornered; finely striated externally towards a large conspicuous *hilum* which faces the wall of the capsule, and which is connected with the axillary placenta by a long, broad *funiculus*. Each seed is nearly surrounded by a tough aril; opposite the *hilum* a scar-like depression is observable. The seeds have a pungent, burning taste, and aroma resembling the *Larger Galangal Root;* the pericarp is similarly aromatic and biting.

Authentic specimens of the fruit of *Alpinia Galanga* grown in the Calcutta Botanic Garden, and kindly placed at my disposal by Dr. Thomson, are identical with the Chinese drug.

東 坡 荳 蔻 *Tung-po-tow-kow.*—Round or Cluster Cardamom. Fruit of *Amomum Cardamomum* L. (*Scitamineæ*); also called in Chinese *Hang-kow*, *Seaou-kow*, &c.

A well-known fruit, described in all the larger works on Materia Medica, but which in recent times had become rare, its place being supplied by the Malabar Cardamom (*Elettaria Cardamomum* Maton), the seeds of which are very similar in odour and taste. Since, however, the opening of Siam to European commerce, Round Cardamoms have been frequently imported into London from Bangkok.

[*From the* Pharmaceutical Journals *for* November *and* December, 1861.]

(With a few Corrections).

NOTES ON CHINESE MATERIA MEDICA.

BY DANIEL HANBURY, F.L.S.

ROOTS.

鬱金 *Yŭh-kin.*—Tubers of a species of *Curcuma* (*Scitamineæ*); *Pun-tsaou*, fig. 179; Tatarinov, *Catal. Med. Sinens.*, p. 32; *Yŏ kin*, Cleyer, *Med. Simp.*, No. 65.

Oblong or ovate tubers (fig. 11) tapering at either end, from ¾ to 1¼ inches in length, covered externally with a thin, adherent, brownish-grey cuticle, usually (but not invariably) smooth. When broken, they exhibit a shining fracture, and are seen to consist of a hard, semi-transparent, horny, orange-yellow substance, easily separable into two portions, an inner and an outer. The tubers have an aromatic odour, and a slight taste resembling turmeric, and contain an abundance of starch.

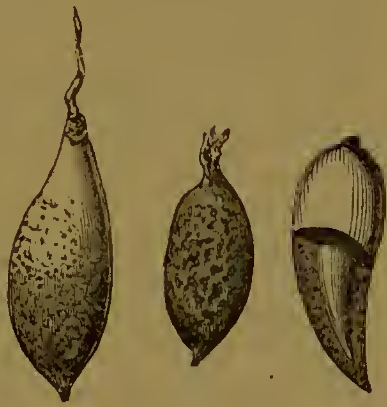
Fig. 11.

Many scitamineous plants produce at the extremities of the roots springing from the rhizome, starchy tubers such as those above described. Dr. Roxburgh calls them *pendulous tubers*, from their descending into the ground beneath the rhizome.[†] They are usually less aromatic, and more amylaceous, than the rhizome: from those of some species of *Curcuma*, the so-called East Indian Arrowroot is manufactured.

The plant producing *Yŭh-kin* is undetermined; it is a native of the south of China, and is most probably a species of *Curcuma.*

玉竹 *Yŭh-chŭh;* Rhizome of *Bambusa Arundo* Nees (*Gramineæ*); *Yĕ chŏ*, *Arundo Bambos* Lour. (non Linn.)

This drug consists of a rhizome of a pale yellowish-brown colour and somewhat translucent, in contorted pieces of some inches in length, flattened or nearly cylindrical, $\frac{2}{10}$ to $\frac{4}{10}$ of an inch in greatest diameter, marked with concentric rings at unequal distances, and dotted with the remains of radical fibres. The pieces are moist, compressible and flexible, but break readily with a short fracture. They have a sweetish, mucilaginous taste, with but little odour. When macerated in water, they regain their natural dimensions, becoming three times as thick as in the dry state. The root and young shoots of this bamboo are stated by Loureiro, in the medical language of the day, to be resolvent and attenuant, to promote diaphoresis and diuresis, to purify the blood, &c., &c.

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[*] Paris, 1848, p. 83.

[†] See figures given by Rumphius, Kæmpfer, Roscoe, and others.

蒼朮 *Tsang-shŭh;* Rhizome of *Atractylodes* sp. (*Compositæ*); *Pun-tsaou*, fig. 102.

Portions of a rhizome from ½ to ¾ of an inch in diameter, occurring in oblong, jointed, occasionally branching pieces, of 1½ to 3 inches in length. They are invested with a rough, brown cuticle, and some pieces are beset with radical fibres. The cut surface exhibits a spongy whitish substance, scattered through which, cells filled with resinous-looking matter of a deep orange colour may be seen with a lens.* *Tsang-shŭh* has a slightly aromatic odour, though but little taste. It is enumerated among the drugs of Kiang nan and Hoo-kwang. According to MM. Hoffmann and Schultes,† three species of *Atractylodes*, namely *A. lancea* D. C., *A. lyrata* S. et Z., and *A ovata* D. C., are known by the Chinese name above given. Thunberg, who describes two of them under the genus *Atractylis*, does not allude to their possessing medicinal properties.

玄參 *Heuen-săng; Hiuen sen*, Cleyer, *Med. Simp.*, No. 44; *Pun-tsaou*, fig. 110; *Siuan-szen*, Tatarinov, *Cat. Med. Sinens*, p. 48.

Fleshy roots of about 4 inches in length and one inch in diameter at the middle, whence they taper to either extremity. They are longitudinally wrinkled and furrowed, and covered with an adherent brown cuticle; internally, they are fleshy and black; they have a sweetish taste and but little odour.

延胡索 *Yen-hoo-sŭh;* Tubers of *Corydalis ambigua* Chamisso et Schlechtendal in *Linnæa*, t. i. (1816), p. 558 (*Fumariæ*); *Pun-tsaou*, fig. 133.

Little, hard, brown tubers, of somewhat flattened spherical form, averaging half an inch in diameter. Externally, they are covered with a thin wrinkled cuticle; when broken, they exhibit a bright yellow, semi-transparent, waxy appearance.

Corydalis ambigua Cham. et Schl., from which, according to Messrs. Hoffmann and Schultes,‡ this drug is derived, is a plant of Siberia and Kamtschatka, throwing up its flowers upon the melting of the snow in early spring; it is also found in the Amoor country. I am indebted to Dr. E. Regel, of St. Petersburg, for an authentic specimen of the tuber of this plant, comparison of which with the Chinese drug is confirmatory of their identity.

麥門冬 *Mĭh-mun-tung;* Tubers of *Ophiopogon Japonicus* Ker (*Smilaceæ*); *Convallaria Japonica* L.; *Mondo* Kæmpf., *Amœn.*, p. 823, with fig.; *Pun-tsaou*, fig. 268; *Mĕ mûen tum*, Cleyer, *Med. Simp.*, No. 14.

This drug consists of cylindrical fleshy tubers, from 1 to 2 inches in length, and from ⅛ to ¼ of an inch in diameter, tapering at either extremity (fig. 12). They are of a pale yellowish grey colour and translucent; somewhat shrivelled through drying, soft, flexible, yet easily broken. A central ligneous cord, resembling a stiff thread, runs longitudinally through each. The tubers have a slightly saccharine and aromatic taste, with a somewhat terebinthinous not unpleasant odour. Their aqueous decoction is not rendered blue by iodine.

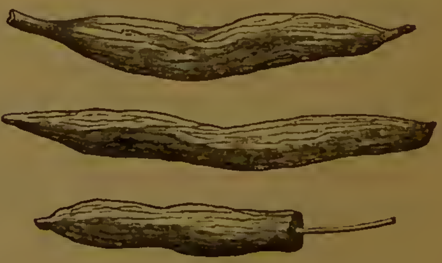
FIG. 12.

Ophiopogon Japonicus, a low perennial with a creeping rhizome, produces

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[*] This resinous-looking matter is not removed by water, alcohol, or ether.

[†] *Journal Asiatique*, Oct., Nov., 1852, p. 275.

[‡] *Op. cit.*, p. 286.

small tubers as expansions of the radical fibres: that they are really identical with the drug found in the Chinese shops, I have been able to convince myself by actual comparison. Kæmpfer, who figures the plant well, states that a second species called in Japanese *Temondo*, and common in the province of Satzuma, produces larger tubers, and is therefore preferred. Two varieties of *Ophiopogon Japonicus* are described by Thunberg ;* one of them may possibly be identical with Kæmpfer's *Temondo.* According to Loureiro, the tubers of his *Commelina medica* (*Aneilema* R. Br.) are called *Mĭh-mun-tung.*

The drug under notice is in frequent use among the Chinese, the candied tubers being eaten as a medicine.

天門冬 *Tëën-mun-tung* ; Tubers of *Melanthium Cochinchinense* Lour.; *Tian-myn-dun,* Tatarinov, *Catal. Med. Sinens.*, p. 56 ; *Pun-tsaou*, fig. 401.

These, like the preceding, are fleshy, translucent, yellowish-brown tubers, of the thickness of a writing quill to that of the little finger, and often 3½ inches in length. They are usually flattened, and more or less contorted and longitudinally furrowed. They have a mucilaginous, slightly saccharine taste, but do not possess any marked odour.

Loureiro states that this drug is regarded as diaphoretic and expectorant, and that it is administered in phthisis and also (in the form of decoction ?) to allay feverish thirst and heat. It is also preserved with sugar as a sweetmeat. It appears to be produced in the province of Chekiang. According to Loureiro, the plant is frequent in dry hedges both in Cochin China and China.

木香 *Mŭh-heang* ; Root of *Aucklandia Costus* Falc. (*Compositæ*), *Linn. Trans.*, vol. xix., part i. (1842), p. 23; *Aplotaxis Lappa* Decaisne, in Jacquemont's *Voyage dans l'Inde*, tome iv. (1844), *Botanique*, p. 96, pl. 104 ; *Mu-sian*, Tatarinov, *Cat. Med. Sinens.*, p. 40 ; *Mŏ hiam̄*, Cleyer, *Med. Simp.*, No. 18 ; *Costus Root* or *Putchuk.*

This root is collected in enormous quantities in the mountains of Cashmere, whence it is conveyed to Calcutta and Bombay, and there shipped for China.

The drug has a pungent, aromatic taste, with an odour resembling that of orris root. There is an excellent account of it, with a figure, in Professor Guibourt's *Histoire des Drogues*, tome iii., p. 25.

川烏 *Chuen-woo* ; Root of ? *Aconitum* sp. (*Ranunculaceæ*). Conical or top-shaped tuberous roots (fig. 13), about 1½ inches in length, covered with a blackish brown cuticle ; internally they are white and amylaceous. They taste slightly bitter, and leave a persistent sensation of numbness and tingling on the tongue, with some acridity in the throat.

Ground to powder, and mixed with an equal quantity of the root *Tsaou-woo* (next described) and of the flowers *Naou-yang-hwa,* also in powder, a compound is obtained which is reputed to produce local anæsthesia. This powder, moistened, is to be applied to the surface of the part to be operated upon for two hours previous to the operation, by which means, it is alleged, insensibility to pain will be produced.

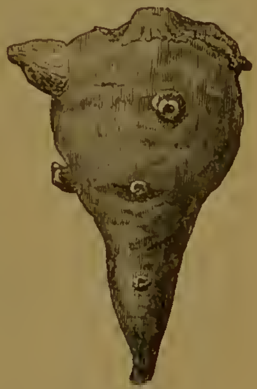

Fig. 13.

草烏 *Tsaou-woo* ; Root of *Aconitum Japonicum* Thunb. ; Tatarinov, *Catal. Med. Sinens.*, p. 5. Blackish tuberous roots analogous to the last, but smaller in size and less regular in form (fig. 14). They are from $\frac{6}{10}$ of an inch to upwards of one inch in length, and from $\frac{2}{10}$ to $\frac{4}{10}$ of an inch in diameter; oblong or ovoid, either tapering or rounded at their extremities, covered with a smooth or furrowed blackish cuticle; internally, they are white and inodorous. They are used with the preceding for producing insensibility to the pain of a surgical operation. According to Dr. Christison,* they are also the basis of an extract used to poison the arrows employed for killing game. Dr. C., who examined some of this extract, reported that it had evidently been prepared with care and skill, and that a minute portion of it, applied to the tongue or lips, occasioned an intense sensation of numbness and tingling.

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* *Flora Japonica*, p. 139.

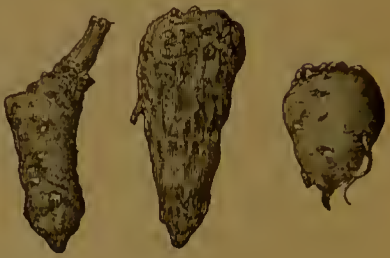
FIG. 14.

This aconite root is said to be produced in the province of Chekiang; I refer it to *Aconitum Japonicum* Thunb. upon the authority of MM. Hoffmann and Schultes,† but it is highly probable the Chinese name is not restricted to a single species.‡

青 木 香 *Tsing-mŭh-heang;* Root of *Aristolochia* sp.? Tatarinov, *Catal. Med. Sinens.*, p. 12.

A grey, brittle root, of the thickness of a goose quill, whitish and farinaceous internally. It has a slightly aromatic taste, with but little smell: referred to an *Aristolochia* in Tatarinov's Catalogue.

知 母 *Che-moo*; Rhizome of *Anemarrhena asphodeloides* Bunge (*Liliaceæ*); Tatarinov, *Catal. Med. Sinens.*, p. 16; *Pun-tsaou*, fig. 97.

A rhizome, the size of the little finger (fig. 15), occurring in pieces often four inches long; the upper side is flattened, or even somewhat channelled, beset with coarse, adpressed, ascending, rufous or yellowish hairs, which pass into scales at the once growing extremity, where also the remains of a stem rising at a right angle from the rhizome sometimes occur. The under side is convex, and covered with thick radical fibres, or more usually with their scars. The drug has but little taste and smell: it is brought from the province of Shansi. The plant is enumerated by Maximowicz in the Flora of Pekin.§

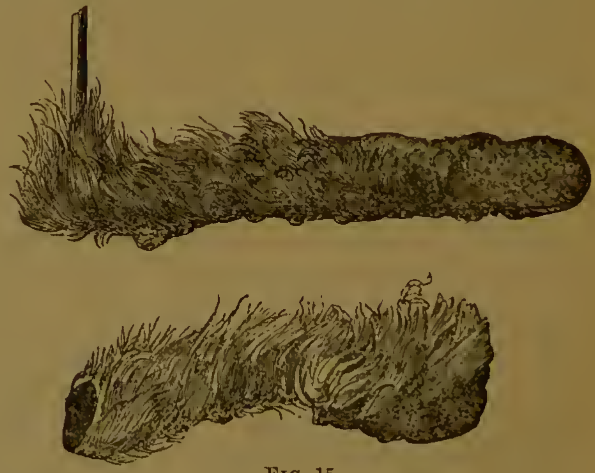
FIG. 15.

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* On a New Poison from the Interior of China, *Edinb. Medical Journ.*, April, 1859, p. 869.

† *Journ. Asiatique*, Oct., Nov., 1852, p. 271.

‡ Maximowicz enumerates nine species of *Aconitum* as occurring in the region of the Amoor, four in the neighbourhood of Pekin, and three in Mongolia.—*Primitiæ Floræ Amurensis*, St. Petersburg, 1859.

§ *Primit. Flor. Amurens.*, p. 478.

於 朮 *Yu-shŭh;* Root of a plant of the nat. ord. *Umbelliferæ ?* Contorted fleshy roots, anteriorly about ⅜ of an inch thick, but lower down swelled into nodular tubers, an inch or two in diameter, covered everywhere with a wrinkled brown skin; internally they are of a pale rusty colour, moist and easily cut, and have an aromatic odour and sweetish aromatic taste.

川 芎 *Chuen-keung; Czuan-siun, Rad. Levistici ?* Tatarinov, *Catal. Med. Sinens.*, p. 15.

Nodular masses consisting apparently of the rootstock of some umbelliferous plant allied to Angelica. The specimens are from 1¼ to 2½ inches in diameter, having a very irregular, rough, brown, outer surface, and a pale yellowish-brown, cavernous interior.

The odour of the drug resembles that of the root *Tang-kwei* (next described). A decoction of these two roots is taken daily by the Chinese women for some time previous to childbirth, under the idea that it diminishes the dangers incident to such a state.

當 歸 *Tang-kwei;* Root of *Aralia edulis* S. et Z. (*Umbelliferæ*), *Flora Japonica*, tab. 25; *Doku quatz*, vulgo *Dosjen*, Kæmpf., *Amœn.*, p. 826; *Pun-tsaou*, fig. 155.

This is a fleshy branching root, in size, shape, colour, and general appearance somewhat resembling gentian. It is internally whitish, has a sweetish, aromatic taste, and an odour approaching that of celery or angelica. It is said to be brought from the western provinces of China.

In Japan, according to Von Siebold, *Aralia edulis* is universally cultivated in fields and gardens, where it attains a height of three or four feet, flowering in August and ripening its bluish-black berries in November. It is valued chiefly on account of its root, which is eaten like Scorzonera, but the young stalks are likewise a delicious vegetable.

人 參 *Jin-săng;* Root of *Panax Ginseng* C. A. Meyer (*Araliaceæ*) *fide* Horaninow; *Pun-tsaou*, fig. 90; Ginseng Root.

The most esteemed variety of this famous drug is that obtained from Corea. but good qualities are produced also in Mongolia, Mantchouria, and other mountainous parts of the Chinese empire. The American ginseng imported into China is the root of *Panax quinquefolium* L.; it is much less esteemed than the native drug. Ginseng is regarded by the Chinese as the most potent of restoratives, and the finer qualities realize extravagant prices.[*] Its medicinal value appears, however, to the European practitioner entirely overrated, the root being simply mucilaginous, aromatic, and slightly bitter and saccharine.

升 麻 *Shing-ma;* Rhizome of *Thalictrum rubellum* S. et Z. (*Ranunculaceæ*); *Szen-ma*, Tatarinov, *Cat. Med. Sinens.*, p. 53; *Pun-tsaou*, fig. 130; *Sien mâo*, Cleyer, *Med. Simp.*, No. 90.

It is said to be produced in the province of Shan-si.

茅 慈 菇 *Mow-tsze-koo.* The pseudo-bulbs of an orchideous plant; they are more or less ovate, shrunken, translucent, and horny; they vary in length from ½ an inch to 1¼ inches.

光 菇 *Kwang-koo;* Small bulbs resembling those of a Tulip; they are about $\frac{6}{10}$ of an inch long, smooth, and of a buff colour. The thin enveloping outer membrane has been removed; when cut, the external scale is seen to be very thick.

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[*] See the interesting account of a Ginseng merchant contained in Mr. Lockhart's *Medical Missionary in China*, ed. 2, p. 107.

小環釵 *Seaou-hwan-chai*; Rhizome in size and form resembling that of *Triticum repens* (*Radix graminis*), of a bright yellow colour, tasteless, and inodorous. It is said to be derived from an aquatic plant inhabiting Cochin-china. I have not been able to identify the Chinese name, nor do I know the uses of the drug.

生半夏 *Sang-pwan-hea;* Tubers (tuber-buds) from the leaves of ? *Pinellia tuberifera* Tenore (*Aroideæ*); *Arisæma ternatum* Schott, *Meletemata Botanica*, 1832, i., p. 17; *Pun-tsaou*, fig. 357?

Under the name of *Sang-pwan-hea*, there occur in the Chinese shops certain tubers (fig. 16) having the aspect of little balls about half an inch in diameter, flattened on one side, and in colour of a dirty white. More closely examined, we perceive on the flattened side a depression or sort of umbilicus, attached to which the remains of an enveloping membrane may sometimes be found. Around the depression, and extending over half the tuber, are a number of little pits. The tubers are brittle, yet soft enough to be easily cut with a knife. Their cut surface is perfectly white, and shows no trace of concentric layers, or other structure than an uniform mass of starchy, cellular tissue.

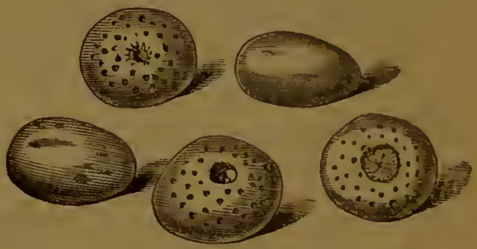

Fig. 16.

Mr. H. G. Schott, of Vienna, an authority of the highest eminence on *Aroideæ*, has obligingly examined these tubers, and has suggested that they are produced by *Pinellia tuberifera* Tenore, a plant of wide distribution in China, as well as in Japan.

The name *Pwan-hea* (*sang* signifies *crude*) appears to be applied to several species of *Arum*.

南星 *Nan-sing*[*]; Tuber of *Arum pentaphyllum* L. (*Aroideæ*); Tatar., *Catal. Med. Sinens.*, p. 40; Cleyer, *Med. Simp.*, No. 88.

Hard, whitish tubers, ½ an inch to 1½ inches across, of flattened spherical form, having a depression, generally surrounded with little pits, on the upper surface, marking the situation of the bud. Many of the larger tubers have smaller ones branching from them. In the dry state the drug has but little smell and taste; yet when chewed, even in minute quantity, it proves exceedingly acrid. Both Cleyer and Loureiro[†] enumerate many virtues ascribed to this drug, but they are too indefinite to merit much attention.

This drug resembles the preceding (*Sang-pwan-hea*), but the tubers of this attain much larger dimensions and are far less regular in form and size.

WOODS, BARKS, &c.

沉香 *Chin-heang;* Wood of *Aquilaria Agallocha* Roxb. (*Aquilarineæ*); *Chîn hiam̄*, Cleyer *Med. Simp.*, No. 208; *Sinkoo*, Kæmpfer *Amœnitates*, p. 903; *Agallochum*, *Calambac*, *Agila Wood*, *Aloes Wood*.

The history of this celebrated substance, which is the *Aloes* or *Lign Aloes* of the Scriptures, is so replete with interest, that it is difficult to bring within due bounds even the most succinct account of it. I will, therefore, refer the reader who wishes for further information to the authors cited below.*

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[*] The plant to which Kæmpfer (*Amœn*, p. 786) applies these characters is the *Arum triphyllum* of Thunberg's *Flora Japonica*, p. 233.

[†] *Flora Cochinchinensis*, ed. Willd., p. 652.

It may in the first place be observed that this, the Biblical Aloes, has no relation with the extract now called by that name, and that it does not possess even the most well-known character of that drug—intense bitterness. Aloes wood is the produce of *Aquilaria Agallocha* Roxb., a tree of vast size, growing in the mountainous parts of Cochinchina, the Laos country, and adjoining regions, and extending westward into Silhet and Assam. The wood in its ordinary state is not valued as a drug, being pale in colour, light, and inodorous. But under certain conditions a change takes place in portions of both trunk and branches, the wood becoming gorged with a dark, resinous, aromatic juice, and acquiring a greater specific gravity. It is these portions of the wood that constitute the drug in question, which is esteemed the more in proportion as it is ponderous and abounds in resinous matter. In Silhet, the collection of aloes wood is a precarious and tedious business; those engaged in it proceed some days' journey into the hilly districts, where they fell any trees they may find, young or old, and then, on the spot, search them for the *aggur*, as the valued wood is called. This is done by chopping off the bark and into the wood, until they observe dark-coloured veins, indicating the proximity of wood of valuable quality, which generally extends but a short distance from the centre of a trunk or branch. In this manner a whole tree is searched through, the collectors carrying away only such pieces as are rich in odoriferous resinous matter. In some districts it is customary to facilitate the extraction of the resinous wood by burying portions of the tree in moist ground, or by allowing the entire tree to remain a length of time after it is cut down, the effect of which is to cause decay in the non-resinous wood, and thus render it easily removable by an iron instrument. I have specimens of aloes wood in which this process has evidently been adopted. Aloes wood is sorted by the collectors into various qualities, the finest of which, called *Ghurkee*, is worth in Silhet from 12*s.* to 16*s.* per pound. As may readily be imagined, the drug occurs in pieces of extremely irregular shape and size; I have seen none exceeding a pound in weight, while some of excellent quality is met with as small chips and splinters. The larger pieces have mostly been scooped and trimmed with great care, so as to remove, as far as possible, all the less resinous portions. The wood is of a deep brown colour, marked more or less distinctly with innumerable coarse parallel veins loaded with resinous matter. A good sample yielded me 48 per cent. of matter soluble in rectified spirit. The wood has a slightly bitter, aromatic taste; its odour is peculiar and not remarkably agreeable; some persons compare it to sandal wood, others to ambergris. In the Bible we find it associated with other perfumes, as in the Psalms† and Proverbs‡ with cassia or cinnamon, and myrrh, in the Canticles§ with spikenard, saffron, calamus, cinnamon, frankincense, and myrrh, and again with myrrh in the New Testament,|| where it appears such a mixture was used in embalming the body of our Blessed Lord.

In the present day, aloes wood is chiefly used in China, where it is principally consumed as incense. It is, however, to be met with in all Eastern bazaars, including those of Syria, where I have myself seen it for sale. In Silhet it seems to be chiefly collected for the sake of extracting from it a sort of essential oil or oleo-resin, which is obtained, according to one account, by distillation, according to another, by infusing fragments of the wood in boiling water, and collecting

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* Guibourt, *Hist. des Drog.*, éd. 4, tome iii., p. 313; Roxburgh on the genus *Aquilaria*, *Linn Trans.*, vol. xxi., p. 199; Royle, *Illustrations of the Bot. of the Himalaya*, vol. i., p. 171; Loureiro, *Flora Cochinchinensis*, ed. Willd., p. 327; Kæmpfer, *Amœnitates*, p. 903; Finlayson, *Mission to Siam and Hué*, pp. 94-258.

† Psalm xlv., v. 8.

‡ Prov., chap. vii., v. 17.

§ Cant. chap. iv., v. 14.

|| John, chap. xix., v. 39.

the "*uttur*" (oil) that rises to the surface. I have a sample of this *uttur* which has been prepared, as I judge, by the former process.

Aloes wood has long had a place in the Materia Medica of the Pharmacopœias of Europe, but the finer qualities of the drug have hardly ever been imported. It does not appear to possess any properties that call for its admission to modern medical practice.

牙 香 *Ya-heang;* Wood of ? *Aquilaria Chinensis* Spreng. (*Aquilarineæ*); A light, spongy wood formed of coarse parallel fibres, devoid of aroma, but having a bitterish taste. I have referred it, upon the authority of Mr. S. Wells Williams,* to *Aquilaria Chinensis* Spreng. (*Ophispermum Sinense* Lour.), but with doubt, since the Chinese name given by Loureiro for that tree is *Pă mŏu yong.*

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* *English and Chinese Vocab.*, p. 103.

[*From the* Pharmaceutical Journal *for* February, 1862.]

NOTES ON CHINESE MATERIA MEDICA.

BY DANIEL HANBURY, F.L.S.

厚朴 *How-pŭh;* Bark of *Magnolia hypoleuca* S. et Z. (*Magnoliaceæ*); *Heú-pŏ*, Cleyer, *Med. Simp.*, No. 200; Tatarinov, *Catal. Med. Sinens.*, p. 8; *Pun-tsaou*, fig. 735.

A rough, thick bark, which in my specimen has been tightly rolled round several times, so as form a cylinder 7 inches long by 2½ in diameter. The bark has a bitterish, pungent, aromatic taste, and is prized by the Chinese on account of its reputed tonic and invigorating properties.

黄栢 *Hwang-pĭh*; Bark of *Pterocarpus flavus* Lour. (*Leguminosæ*); Tatarinov, *Catal. Med. Sinens.*, p. 9.

Stated by Loureiro to be resolvent and vulnerary; also to be used as a yellow dye for silk.

閙楊花 *Naou-yang-hwa;* Flowers of *Rhododendron?* (*Ericaceæ*); Cleyer, *Med. Simp.*, No. 186.

Used in conjunction with aconite root as a topical application to produce insensibility to the pain of a surgical operation (*vide* p. 31). Dr. Horaninow refers this Chinese name to *Hyoscyamus*.

石韋 *Shĭh-wei;* Fronds of *Niphobolus Lingua* Spr., *Acrostichum Lingua* Thunb. *Flor. Jap.*, tab. 33 (*Filices*); *Pun-tsaou*, fig. 474.

五倍子 *Woo-pei-tsze;* Galls of *Rhus semi-alata* Murr. (*Anacardiaceæ*); *U poì çù*, Cleyer, *Med. Simp.*, No. 225; *Pun-tsaou*, fig. 839.

These galls now constitute so regular an article of commerce that it is not needful here to describe them. Some pharmacologists have asserted that *Distylium racemosum* S. et Z., a large tree of the nat. ord. *Hamamelideæ*, growing in Japan, is the plant upon which they are produced. That this is erroneous, I have satisfied myself,—1. By an examination of herbarium specimens of this plant, and of *Rhus semi-alata* Murr. 2. By an examination of original packages of the galls, imported from China and Japan, which I find to contain the leaf-stalks and remains of flowers of *Rhus*, but never anything which I could trace to *Distylium*. 3. By the completely different form of the galls of the *Distylium*, as figured by Siebold and Zuccarini in their 'Flora Japonica,' tab. 94.

Chinese galls (so-called) have lately been imported from Japan; they are somewhat smaller than those shipped from China, but appear to be produced by the same tree.

没石子 *Mŭh-shĭh-tsze;* Galls of *Quercus* sp. (*Amentaceæ*); *Pun-tsaou*, fig. 756.

These do not differ from the galls of *Quercus infectoria* Oliv., the common Aleppo galls of Europe.

茯苓 *Fŭh-ling; Pachyma Cocos* Fries (*Fungi*); *Lycoperdon solidum* Gronovius; *Pĕ fŏ lîm*, Cleyer, *Med. Simp.*, No. 189; Tatarinov, *Cat. Med. Sinens.*, pp. 2–23; *Pun-tsaou*, fig 822; Indian Bread, or Tuckahoe.

A very remarkable substance resembling large, ponderous, rounded tubers, having a rough, blackish-brown, bark-like exterior, and consisting internally of a compact mass of considerable hardness, varying in colour from cinnamon-brown to pure white. These tuberiform bodies which in weight vary from a few ounces up to several pounds, are found attached to the roots of fir-trees, or sometimes buried in the ground in localities where firs no longer grow. They occur in South Carolina, in some of the northern and western provinces of China, and in Japan. Their true nature is sufficiently perplexing. The older writers, as Martinius and Cleyer, considered them to be a sort of *China Root* (*Smilax*), a supposition which their outward appearance certainly favours, but which is immediately negatived when we find them to contain no trace of starch. Loureiro and Endlicher are content to describe them as *tubers* found upon the roots of fir-trees. Other botanists have placed them among *Fungi;* Gronovius and Walter in the genus *Lycoperdon*, Schweinitz in *Sclerotium*, Oken, Horaninow, and Fries in *Pachyma.* The latest observations on the subject are some which were submitted to the Linnean Society by Mr. F. Currey and myself last year, and published in the 'Linnean Transactions.'* The opinion there expressed is that these tuber-like bodies are an altered state of the root of the tree, probably occasioned by the presence of a fungus, the mycelium of which traverses, disintegrates, or even obliterates, the wood and bark. This mycelium appears under the microscope in the form of fine threads, usually more or less mixed with bodies of irregular shape, somewhat resembling starch-granules, but which are, apparently, cells of the woody tissue in a more or less advanced state of disease and distortion. Nothing is known of the more developed form of the fungus represented by this mycelium.

The American *Fŭh-ling* has been examined chemically by Professor Ellett, of South Carolina College, who has stated it to consist entirely of pure pectine of Braconnot;† but I think its composition deserves some further investigation. I find that the pure-white internal substance (which is quite insipid and inodorous) is very slightly soluble in cold rectified spirit and in cold water, and not more so when boiled in water, the solution in each case yielding a flocculent precipitate with acetate of lead. When boiled in a weak solution of carbonate of soda, the substance dissolves rather more freely, and the solution affords a scanty gelatinous precipitate (*pectic acid?*) when treated with an acid, or (*pectate of lime?*) with a solution of lime.

In China the *Fŭh-ling* is made into edible cakes, which are frequently sold in the streets; it is also reputed medicinal in a variety of disorders. In America it has also been used as an article of food, whence the name *Indian Bread.*

豬苓 *Choo-ling;* Berkeley, *Journal of Proceedings of Linnean Society*, vol. iii. 1859, Botany, p. 102; Currey and Hanbury, *Linn. Trans.*, vol. xxiii. p. 95, tab. 9, fig. 10–13; *Chū lîm*, Cleyer, *Med. Simp.*, No. 207; Tatarinov, *Cat. Med. Sinens.*, p. 17; *Pun-tsaou*, fig. 824.

Tuberiform bodies of much smaller size, less regular shape, as well as less ponderous than the preceding; they are covered with a thin, black, more or less shrivelled cuticle, which closely invests a homogeneous, corky, yellowish-brown substance. The microscopic structure of these quasi-tubers resembles that of the *Fŭh-ling;* but the threads by which their substance is traversed are more interwoven and more branched, and have not the appearance of being the mycelium of a fungus. The same irregularly shaped bodies as seen in *Fŭh-ling*, are also present, but their dimensions are smaller. In a few specimens, an abundance of doubly prismatic crystals has been noticed. "Treated with the same chemical tests as the *Foo-ling*," remarks Mr. Berkeley, "it [the *Choo-ling*] exhibits precisely the same reaction. There is not the slightest trace of starch or cellulose, and it is evident that the structure is not accordant with that of any fungus or phænogamous tuber."

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* Vol. xxiii. p. 94, where the reader will find full references to the botanical works here referred to, as well as figures of *Pachyma Cocos* Fries. See also Berkeley *On some Tuberiform productions from China*, Journ. of Proceedings of Linn. Soc. vol. iii., Botany, p. 102, where there is a translation from the Chinese regarding these substances.

† Berkeley, *l. c.* p. 106.

The *Choo-ling* is stated by Chinese authors to be parasitic on a tree, beneath which it is picked up in spring and autumn. Many fanciful virtues not worth repeating are attributed to it.

雷 丸 *Luy-wan; Mylitta lapidescens* Horaninow (*Fungi*); Tatarinov, *Catal. Med. Sinens.*, p. 34; Currey and Hanbury, *Linn. Trans.* vol. xxiii. p. 96, tab. 9, fig. 14–17; *Lûi uôn*, Cleyer, *Med. Simp.*, No. 227; *Pun-tsaou*, fig. 825.

This substance occurs in the form of small rounded nodules, varying in weight from five grains to nearly half-an-ounce. Their exterior surface is of a dark brownish-grey colour, and generally finely corrugated: their inner substance has a granular appearance, is of a pinkish-brown colour, and of almost stony hardness. A microscopic section shows that the tissue is divided into *areolæ* after the manner of that of the truffle and other underground fungi; no trace of fructification has been observed in any specimen.

This curious vegetable production, which had previously only been known from its occurrence in the drug-shops of China, has lately been obtained in Southern India by Dr. E. J. Waring, who states that it is dug from the chalk-beds in the mountains separating Travancore from Tinnevelly. In India, as in China also, it is used as a medicine, being regarded as powerfully diuretic.

水 安 息 香 *Shuy-gan-seih-heang*; literally, *Liquid Benzoin.*

This drug is a dark-brown, semi-fluid resin, having an extremely fragrant odour of storax. It is met with in small globular wooden shells, apparently the pericarp of some fruit, about 1¾ inches in diameter, closed with wax. Its origin is very obscure. The Chinese assert that they import it from the Straits, or, in other words, by way of the Indian Archipelago; but I have not been able to trace it either there or in Siam. It is curious, moreover, that this fragrant resin, even to the shell enclosing it, is extremely like that kind of balsam of Peru which was brought to Europe long ago in the capsules of a *Lecythis*, and naturally supposed to be a product of South America.

The *Liquid Benzoin* is very expensive, a single shell, holding perhaps half an ounce, being worth four dollars, or 20*s*.

松 香 *Sung-heang; Sum hiam*, Cleyer, *Med. Simp.*, No. 190; Tatarinov, *Catal. Med. Sinens.*, p. 50.—A pale-yellow terebinthinous resin, closely resembling mastich, occurring in small irregular tears, somewhat opaque externally from mutual friction, but perfectly transparent within, and exhibiting a vitreous fracture. It would be a good substitute for mastich.

The name *Sung-heang* is said to be also applied to other terebinthinous resins.

冰 片 *Ping-peën;* Camphor of *Dryobalanops Camphora* Colebr. (*Dipterocarpeæ*); Borneo or Baros Camphor.

Obtained chiefly in Sumatra from fissures in the interior of the trunk of the tree. As the best tree when felled rarely yields more than a few ounces, the drug is very costly, being worth on the spot about 50*s*. per lb. It is chiefly exported to China, but a considerable quantity is consumed in the island for the purpose of embalming the bodies of the petty chiefs, a custom the expense of which often proves exceedingly ruinous to the family of the deceased. The best quality of this camphor occurs in the form of flat colourless crystals, the largest of which rarely exceeds half an inch across. An inferior quality is coarsely pulverulent, and of a grey colour. Dryobalanops camphor has the odour of common or laurel camphor, mixed with something that has been likened to patchouli. It is less volatile than laurel camphor, and has a greater specific gravity, so that it sinks in water. Its composition is $C_{20}\ H_{18}\ O_2$, that of laurel camphor being $C_{20}\ H_{16}\ O_2$.

蟲白蠟 *Chung-pĭh-lah;* Chinese Insect Wax; *Pun-tsaou*, fig. 837. Secreted by *Coccus Pe-la* Westw.,* upon the branches of *Fraxinus chinensis* Roxb., which is cultivated for the purpose, and possibly upon other trees. Some account of the habits of the insect by a competent observer are much required, the Chinese statements on the subject being extremely obscure.

石决明 *Shĭh-keue-ming;* Shells of *Haliotis funebris* Reeve; *Pun-tsaou*, fig. 969; Tatarinov, *Cat. Med. Sinens.*, p. 54; Cleyer, *Med. Simp.*, No. 172.

This shell is stated to occur on the coasts of Fŭh-kien and Kwantung. Messrs. Cuming and Lovell Reeve, who have examined it, concur in referring it to *Haliotis funebris*, a New Holland species, figured by the latter gentleman in his beautiful 'Conchologia Iconica,' sect. *Haliotis*, pl. xii. 38.

龍骨 *Lung-kwŭh;* literally. *Dragon's Bones; Lûm cŏ*, Cleyer, *Med. Simp.*, No. 252; *Pun-tsaou*, fig. 888.

This commodity is sold in the Chinese shops in irregular pieces of a few ounces weight, curiously covered with paper and marked with a stamp. Upon placing a thin slice of it under the microscope, its true nature is revealed, and it is proved to be *fossil ivory*. Many imaginary virtues are attributed to it, as well as to the following.

龍齒 *Lung-che;* literally, *Dragon's Teeth.*—These also are fossil, and obtained, according to the Chinese, in the north-western provinces of Shen-si and Shan-si. Mr. G. R. Waterhouse, of the British Museum, who has, at my request, been good enough to examine a considerable number of specimens, is able to distinguish among them the following:—molars of the lower jaw of *Rhinoceros tichorhinus* Cuv.; fragment of tooth of *Mastodon;* of *Elephas*, near *E. insignis* F. et C.; many molars of *Equus*, teeth of *Hippotherium*, comprising molars of both jaws, agreeing perfectly with those of the *Hippotherium* of Germany and France; an upper molar of an *Hippotherium* probably distinct from the preceding; portion of an upper jaw, with the four posterior molars, of a ruminant allied to the sheep, but of smaller size; molar teeth of two species of stag; molar tooth of bear.

石蠏 *Shĭh-heae;* Fossil Crabs of the Post-Tertiary Period. *Pun-tsaou*, fig. 66.

A celebrated Chinese medicine mentioned by Kircher, Grosier, Du Halde,

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* Mr. Westwood's description of this *Coccus* was published in the 'Gardeners' Chronicle' for 30th July, 1853. Part of the woodcut that accompanied it I have caused to be copied, and have added to it a figure of *Fraxinus chinensis* Roxb., in fruit, and one of a branch of that tree coated by the insect with its waxy secretion,—both taken from specimens in my own collection. In this cut (fig. 17), A. represents the winged male insect, the body of which is of a dark chestnut colour; the abdomen and elongated anal point reddish-buff; legs reddish, thighs brown, wings very slightly stained with brownish-buff, and the two subcostal veins flesh-coloured. B. Female insect, showing the mode in which the body envelopes a twig. C. A very minute larva, half the size of a pin's head; and D. one of the young at a more advanced period of growth.

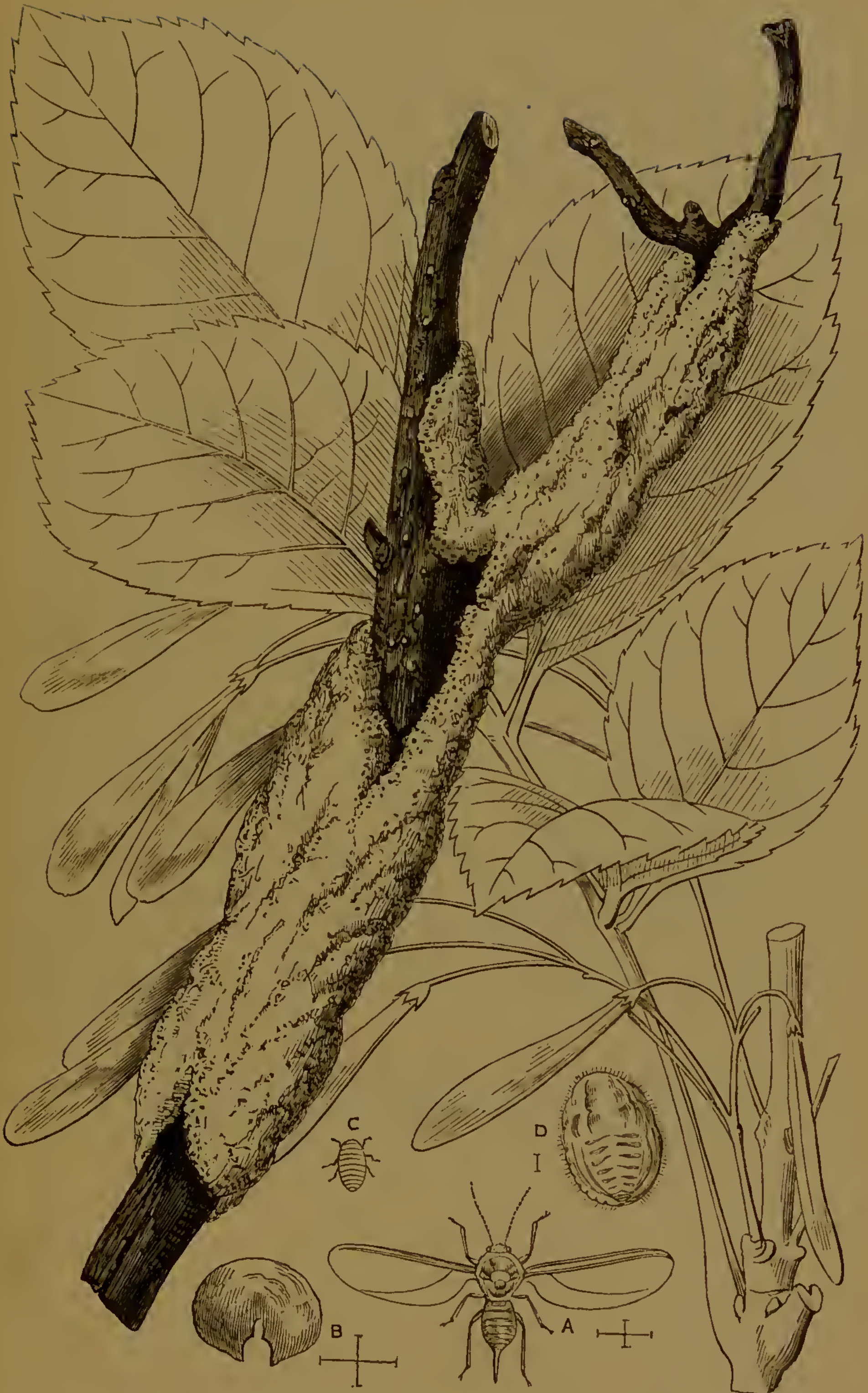

Fig. 17. The Wax-tree (*Fraxinus chinensis* Roxb.); Wax-Insect (*Coccus Pe-la* Westw.); and branch incrusted with the wax.

Cleyer and others, and supposed to be an antidote to all kinds of poison, as well as to possess innumerable other virtues. The specimens which I have received and which are said to be obtained in the island of Hainan and on the opposite shores of Kwang-si, belong to a single species, *Macrophthalmus Latreillii* Edw. (*Gonoplax Latreillei* Desm.), with the exception of one which is referable to a species of the genus *Cancer* not yet described. Probably identical with *M. Latreillii* is the fossil *M. Desmarestii*, described and figured by M. Lucas in the "Annales de la Société Entomologique de France."* Nor is the animal found merely in the fossil state, for, as pointed out to me by Mr. H. Woodward of the British Museum, who has examined the subject with care, a recent species found in the Philippines and named by Mr. Adam White *M. serratus*,† appears to possess no character that can distinguish it from the fossil form.

My friend M. Rondot of Paris obtained from the Chinese *pharmaciens* at Canton, in addition to specimens of the *Macrophthalmus*, a fine example of *Portunus* (*Lupa*) *leucodon* Desm., recently shown by Dr. Alphonse Milne-Edwards ‡ to be identical with the *Scylla serrata* of De Haan § still found living in Japan, the Philippines and at Port Natal. It is a much larger crab than the others, measuring seven to eight inches across the carapace. There are several very perfect specimens of it, reputed to be from the Philippines, in the geological collection of the British Museum.

石燕 *Shih-yen;* Fossil Shells; Tatarinov, *Cat. Med. Sinens.*, p. 54; *Pun-tsaou*, fig. 65.

These fossils have been examined and described by Mr. Thomas Davidson, to whose account and figures in the 'Proceedings of the Geological Society' (June 15, 1853), I refer the reader who wishes for full details. The actual specimens are in the British Museum. Mr. Davidson remarks that the specimens belong to eight Devonian species, seven of which are common to several European localities, among which may be mentioned Ferques and Néhou (France), Belgium and the Eifel, but they are not found all existing together in any one of these localities. In external aspect the Chinese specimens most resemble those from Ferques, where, however, two of them, *Cyrtia Murchisoniana* and *Rhynchonella Hanburii*, have not yet been discovered. If to these be added two described by M. de Koninck, the total number of Chinese Devonian types at present known will amount to ten species, viz.:—3 of *Spirifer*, 2 of *Rhynchonella*, 1 *Productus*, 1 *Crania*, 1 *Cornulites*, 1 *Spirorbis*, and 1 *Aulopora*.

These fossils are asserted to occur in the southern province of Kwang-si, where coal is also met with.

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* Vol. viii. Série 1, 1839, p. 567, t. 20.

† *British Museum List of Crustacea*, London, 1847, p. 37.

‡ *Annales des Sciences Naturelles*, Zoolog., tom. xiv. (1861), pl. i. and ii.

§ *Fauna Japonica*, 1835.

INDEX.

Aconitum, 31.
Acrostichum Lingua, 37.
Agallochum, 34.
Agila wood, 34.
Aleurites triloba, 15.
Aloes wood, 34.
Alpinia Galanga, 27.
Alum, 7.
Amomum Cardamomum, 28.
——— medium, 26.
——— xanthioides, 26.
Ancilema medica, 31.
Anemarrhena asphodeloides, 32.
Aplotaxis Lappa, 31.
Aquilaria Agallocha, 34.
——— chinensis, 36.
Aralia edulis, 33.
Arisæma ternatum, 34.
Aristolochia, 20, 32.
Arsenious acid, 7.
Arum pentaphyllum, 34.
Arundo Bambos, *Lour.*, 29.
Atractylodes, 30.
Aucklandia Costus, 31.

Bambusa Arundo, 29.
Benzoin, liquid, 39.
Biborate of Soda, 5.
Boa-tam-paijang, 17.
Borax, 5.
Broussonetia papyrifera, 15.
Brown Clay Iron-ore, 8.
Bungtalai, 17.

Calambac, 34.
Calcareous spar, 5.
Calomel, 9.
Camphor, Borneo, 39.
Canarium, 22.
Carbonate of Copper, 8.
——— Lead, 8.
——— Lime, 5.
——— and Magnesia, 6.
——— Soda, 5.
Cardamom, 25, 26, 27, 28.
Cassia Tora, 15.
Chaulmoogra, 23.
Che-keu-tsze, 19.
— kuh, 19.
— moo, 32.
— tsze, 21.
Chih-shih-che, 6.
Chin-heang, 34.
Chinese olive, 22.
Chloride of Mercury, 9.
——— Sodium, 5.
Choo-ling, 38.
— sha, 10.
— shih-tsze, 15.
Chuen-keung, 33.
——— leen-tsze, 23.
——— woo, 31.
Chung-joo-shih, 5.
——— pih-lah, 40.
Cinnabar, 10.
Citrus, 19, 20.
Cleyer, his works, 2.
Cnidium Monnieri, 16.
Coccus Pe-la, 40.
Commelina medica, 31.
Convallaria japonica, 30.
Corydalis ambigua, 30.
Costus root, 31.
Croton Tiglium, 14.
Cubebs, Chinese, 24.
Curcuma, 29.
Cuscuta europæa, 20.

Daphnidium Cubeba, 24.
Dialium, 19.
Distylium racemosum, 37.
Dolomite, 6.
Dragon's bones and teeth, 40.
Dryobalanops Camphora, 39.

Erioglossum, 17.

Fan-muh-pee, 14.
Fe-shih, 16.
— tsaou-tow, 19.
Fei-hwo-shih, 6.
Fern spores, 19.

Fluor spar, 6.
Forsythia suspensa, 23.
Fossils, 40, 43.
Fow-kan-shih, 7.
Fraxinus chinensis, 40.
Fuh-ling, 37.

Galls, 37.
Gaou-fun, 20.
Gardenia, 21.
Gingko biloba, 17.
Ginseng root, 33.
Gleditschia sinensis, 18.
Gypsum, 6.

Hae-kin-sha, 19.
Hæmatite, 8.
Haliotis funebris, 40.
Han-shuy-shih, 5.
Hang-kow, 28.
Heuen-sang, 30.
——— -tsing-shih, 6.
Heung-hwang, 7.
Ho-tsze, 16.
Hovenia dulcis, 19.
How-puh, 37.
Hung-pe, 7.
—— sha, 6.
—— shing-yo, 9.
—— sin, 7.
—— tow-kow, 27.
Hwa-luy-shih, 6.
—— tseaou, 13.
Hwae-hwa, 18.
——— shih, 18.
Hwang-pih, 37.
——— shing-yo, 11.

Indian bread, 37.
Insect wax, 40.
Iron pyrites, 9.

Japanese pepper, 13.
Jin-sang, 33.
Juglans Camirium, 15.

Kan-lan, 22.
Kaolin, 6.
Kaou-leang-keang-tsze, 27.
Keen, 5.
Keue-ming-tsze, 15.
Keuh-pih, 19.
Kin-tsing-shih, 6.
King-fun, 9.
—— mung-shih, 6.
Ko-lih-le, 16.
Kwang-fun, 5.
——— koo, 33.
Kwei-hwo-shih, 6.

Lapis Ætites, 9.
Laurus Cubeba, 24.
Leen-keaou, 23.
Leu-sung-kwo, 14.
Levisticum, 33.
Lew-hwang, 5.
Lien-tsze, 20.
Lin-tsze-shih, 8.
Ling, 20.
Litharge, 8.
Loo-kan-shih, 7.
Luh-fan, 9.
Lung-che, 40.
—— kwuh, 40.
Luy-wan, 39.

Ma-tow-ling, 20.
Magnolia hypoleuca, 37.
Marble levigated, 5.
Meih-to-sang, 8.
Melanthium cochin-chinense, 31.
Melia, 23.
Mercury, 9.
Mica, 6.
Mih-mun-tung, 30.
Mow-tsze-koo, 33.
Muh-heang, 31.
—— pee-tsze, 14.
—— shih-tsze, 37.
Muricia cochin-chinensis, 14.
Mylitta lapidescens, 39.
Myrobalans, chebulic, 16.

Nan-sing, 34.
Naou-sha, 5.
—— yang-hwa, 37.
Nelumbium speciosum, 20.
Nephelium, 17.
Niphobolus Lingua, 37.
Nitrate of Mercury, 11.
———— Potash, 5.

Ophiopogon japonicus, 30.
Ophispermum sinense, 36.
Orpiment, 7.
Oxide of Iron, magnetic, 8.
——— ——, per-. 8, 9.
———— Lead, 8.
———— Mercury, 9.

Pa-tow, 14.
Pachyma Cocos, 37.
Panax Ginseng, 33.
——— quinquefolium, 33.
Pang-sha, 5.
Paper Mulberry, 15.

Peih-ching-kea, 24.
Philosopher's stone, 10.
Pih-fan, 7.
—— kwo, 17.
—— shih-ying, 5.
—— sin, 7.
—— tseih-le, 14.
Pimela, 22.
Pinellia tubcrifera, 34.
Ping-peen, 39.
Podocarpus nucifer, 16.
Poo-kwuh-che, 19.
Poung-ta-rai, 17.
Prosopis, 25.
Psoralea corylifolia, 19.
Pterocarpus flavus, 37.
Pun-tsaou-kang-muh, its contents, 3.
Putchuk, 31.
Pwan-hea, 34.

Quartz, 5.
Quisqualis indica, 15.

Realgar, 7.
Red Lead, 8.
Rhododendron, 37.
Rhus semi-alata, 37.

Saint Ignatius bean, 14.
Salisburia adiantifolia, 17.
Sang-pwan-hea, 34.
Seaou, 5.
——— hwan-chai, 34.
——— kow, 28.
Selenite, 6.
Sha-jin-ko, 26.
Shan-che, 21.
Shay-chwang-tsze, 16.
——— han-shih, 9.
She-keun-tsze, 15.
Shih-heae, 40.
——— kaou, 6.
——— keue-ming, 40.
——— leih, 15.
——— wei, 37.
——— yen, 43.
Shing-ma, 33.
Shuy-gan-seih-heang, 39.
——— yin, 9.
Silica, 5.
Silicate of Lime and Magnesia, 6.
————— Magnesia, 6.
Sin-shih, 7.
Soap stone, 6.
Sophora japonica, 18.
Steatite, 6.
Sterculia platanifolia, 24.
Strychnos Ignatia, 14.
Sulphate of Iron, 9.
————— Lime, 6.
————— Soda, 5.
Sulphur, 5.
Sulphuret of Arsenic, 7.
————— Mercury, 10, 11.
Sung-heang, 39.

Ta-fung-tsze, 23.
— hai-tsze, 17.
Tae-choo-shih, 8.
Tan-fan, 9.
—— sha, 10.
Tang-kwei, 33.
Tatarinov's catalogue, 4.
Taxus nucifera, 16.
Teen-mun-tung, 31.
Terminalia Chebula, 16.
Thalictrum rubellum, 33.
Too-sze-tsze, 20.
Torreya nucifera, 16.
Trapa bicornis, 20.
Tremolite, 6.
Tribulus terrestris, 14.
Tsang-shuh, 30.
——— urh-tsze, 16.
Tsaou-keo, 18.
——— keue-ming, 15.
——— kow, 25.
——— kwo, 26.
——— woo, 31.
Tsing-muh-heang, 32.
——— mung-shih, 6.
——— pe, 20.
Tsze-hwang, 7.
——— jen-tung, 8.
——— shih-ying, 6.
Tuckahoe, 37.
Tung-luh, 8.
——— po-tow-kow, 28.
——— tan, 8.

Vermilion, 11.

Water-Lily, 20.
Wei-lew-hwang, 5.
—— tan, 8.
Whang-che, 21.
White-Lead, 8.
Woo-ming-e, 9.
——— pei-tsze, 37.
——— tung-tsze, 24.

Xanthium strumarium, 16.

Ya-heang, 36.
— tsaou, 25.
Yang-chun-sha, 27.

Yang khe-shih, 6.
Yen-hoo-suh, 30.
—— sang, 8.
Yih-she-tsze, 27.
Yin-choo, 11.
—— hang, 17.
—— mung-shih, 6.
—— tsing-shih, 6.
Yu-leang-shih, 8.
Yu-shuh, 33.
Yuen-fun, 8.
—— ming-fun, 5.
Yuh-chuh, 29.
—— kin, 29.

Zanthoxylum, 13.
Zinc Bloom, 7.

CORRIGENDUM.

Page 24, line 7, for *plantanifolia* read *platanifolia*.